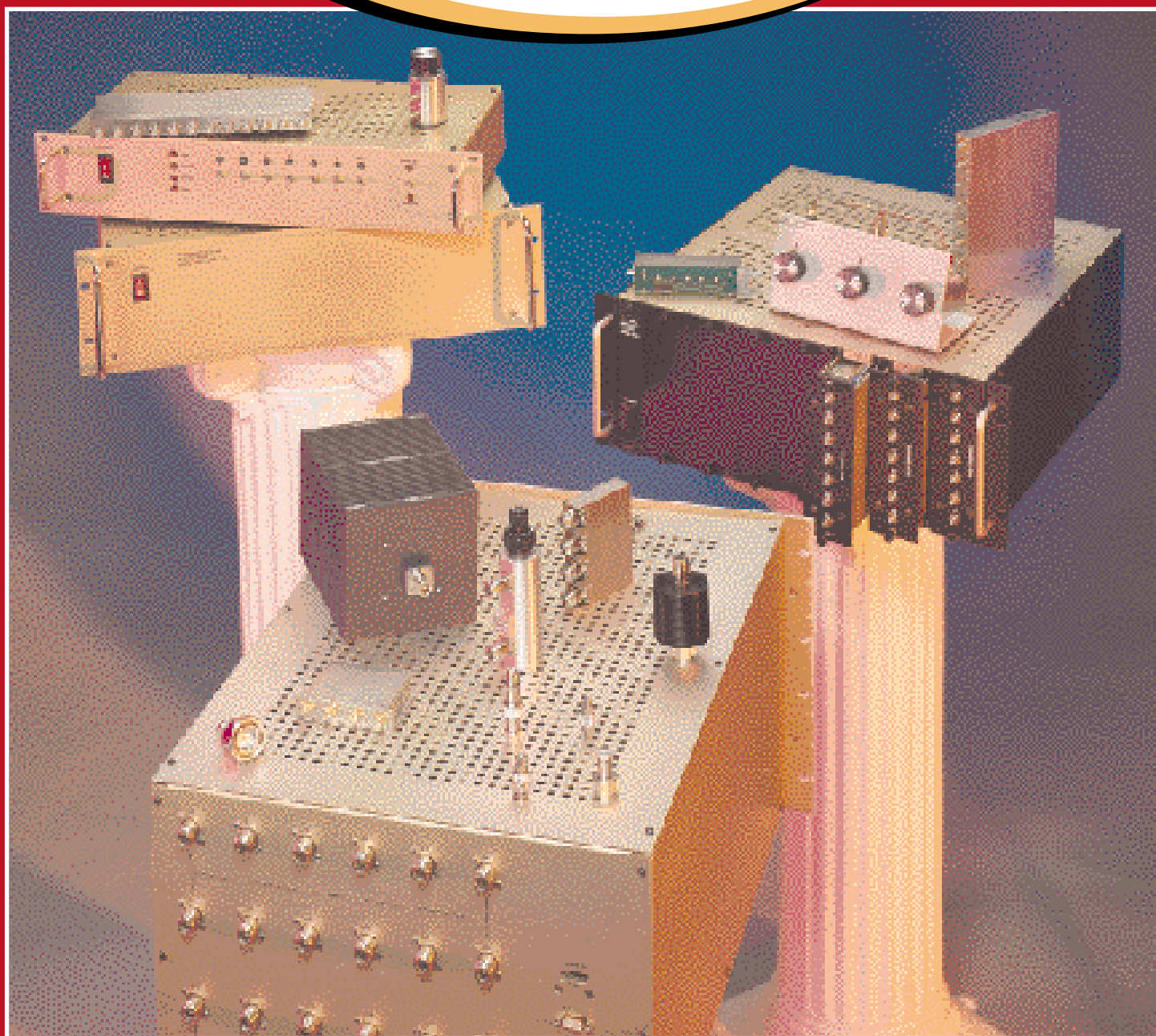




Specialists in Attenuation and RF Switching
2000 Catalog



The JFW Profile...

"JFW is committed to anticipating and exceeding customer's requirements and expectations through cost-competitive, quality products and services that are delivered on time."

Now entering our 4th decade, JFW Industries is a leading designer and manufacturer of innovative RF solutions that include Attenuators, Terminations, Switches, Power Dividers, Matrix Switches, and specialized Test Systems. Located in Indianapolis, Indiana, JFW has over 140 team members working in an ISO 9001 certified environment to exceed the Quality and Service expectations of every single customer.

Our dedicated Engineering team, with over 70 years of combined experience in the RF and Microwave industry, works together with our unsurpassed Customer Service department to provide application specific solutions at a price you can afford. The ability to respond to the specific needs of the customer has JFW devices being used in applications from Broadcast and Cable TV to Cellular/PCS signal verification and site installations.

New Innovations...

In response to a rapidly changing market, JFW is constantly introducing new products that include:

- Broadband Solid State Programmable Attenuators (800-3000 MHz)
- Complete Line of Low Cost Programmable Attenuators (DC-2500 MHz)
- Broadband Solid State Switches (20-4300 MHz)
- High Isolation, Narrow Band Power Dividers (40 dB minimum)
- Low Cost Fixed Attenuators (DC-3000 MHz)
- Complete Line of Fixed Attenuators and Terminations with 7/16 connectors
- New Miniature Rotary Attenuators (DC-2500 MHz)
- Surface Mount Voltage Variable Attenuator
- Multifunction Programmable Test Systems and Matrix Switches
- Improved Local Control Options on Test Systems via a Keypad/Display/Microcontroller

As part of an effort to stay ahead of engineering and buying trends, JFW has also redesigned our Home Page on the World Wide Web. Now easier to use, it features New Product Information, down-loadable specifications and outline drawings from all of JFW's published literature, as well as a direct Email link to our Customer Service department.

For more information on JFW and our products, please contact us or visit our web site at www.jfwindustries.com.

QUALITY POLICY

“JFW is committed to anticipating and exceeding customer’s requirements and expectations through cost-competitive quality products and services that are delivered on time.”

Standard Terms and Conditions

JFW Industries, Inc. has standard terms of Net 30 days with approved credit. Alternate methods of payment include MASTERCARD and VISA. COD or ADVANCE PAYMENT.

International Payment Terms are ADVANCE PAYMENT, IRREVOCABLE LETTER OF CREDIT* or MASTERCARD and VISA.
Any other payment terms must be negotiated in advance.

*Letter of credit orders are subject to a processing fee.

FOB POINT is INDIANAPOLIS, INDIANA USA unless agreed to otherwise at time of order placement. ALL SHIPPING CHARGES will be PREPAID and ADDED TO THE INVOICE or SHIPPED COLLECT VIA YOUR DESIGNATED FREIGHT CARRIER.

JFW INDUSTRIES WARRANTY

JFW PRODUCTS ARE WARRANTED AGAINST DEFECTS IN WORKMANSHIP AND MATERIAL UNDER NORMAL USE AND SERVICE AS FOLLOWS: (2) TWO YEARS FROM DATE OF SHIPMENT FOR ALL FIXED AND SOLID-STATE PRODUCTS. (1) ONE YEAR FROM DATE OF SHIPMENT FOR ALL MECHANICAL AND ELECTROMECHANICAL PRODUCTS. JFW INDUSTRIES' ONLY OBLIGATION UNDER THIS WARRANTY IS TO REPAIR OR REPLACE, AT ITS FACTORY, ANY JFW PRODUCT OR PART THEREOF THAT IS RETURNED TO JFW INDUSTRIES BY THE ORIGINAL PURCHASER WITHIN THE WARRANTY PERIOD.

THE WARRANTY STATED ABOVE IS YOUR SOLE AND EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR FITNESS FOR ANY PARTICULAR PURPOSE. JFW INDUSTRIES SHALL NOT BE LIABLE FOR ANY DIRECT OR CONSEQUENTIAL INJURY, LOSS OR DAMAGE INCURRED THROUGH THE USE, OR INABILITY TO USE, ANY JFW INDUSTRIES PRODUCT.

Factory Location

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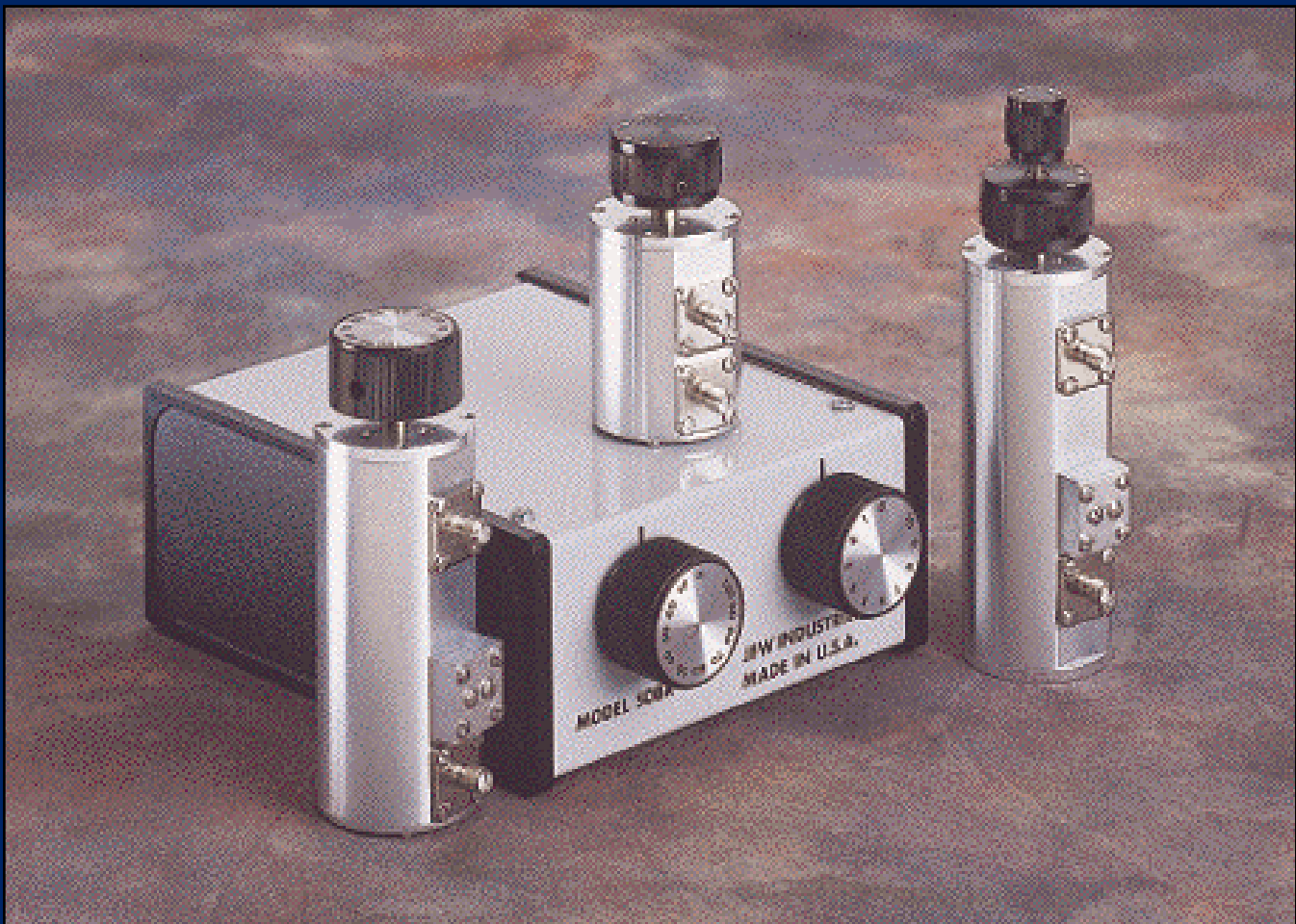


Manual Variable Attenuators

Rotary

Pushbutton

Toggle switch

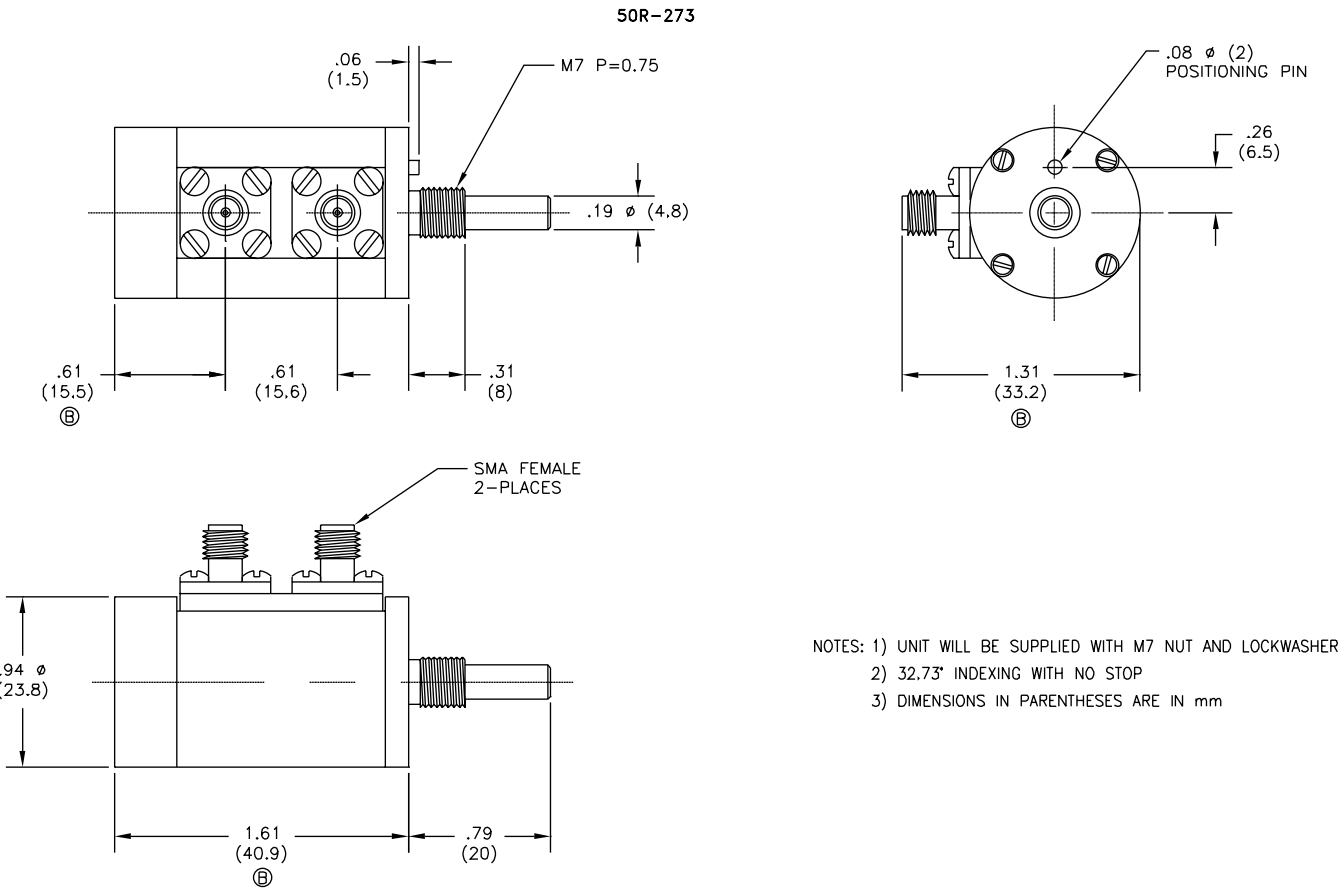


Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss	RF Input Power
50R-273	DC - 2500 MHz	0 to 10 dB in 1 dB steps	0-5 dB +/- .2 dB DC-2000 MHz +/- .2 dB 2000-2500 MHz 6 dB +/- .2 dB DC-2000 MHz + .2 dB/- .35 dB 2000-2500 MHz 7 dB + .2 dB/- .25 dB DC-2000 MHz + .2 dB/- .5 dB 2000-2500 MHz 8 dB + .2 dB/- .35 dB DC-2000 MHz + .2 dB/- .7 dB 2000-2500 MHz 9 and 10 dB + .2 dB/- .5 dB DC-2000 MHz + .2 dB/- .9 dB 2000-2500 MHz	1.25 :1 max.	.25 dB maximum	1 Watt average

Common Specifications

Impedance	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	-20° C to +85° C	Attenuation increases in clockwise direction	32.7° (no stops)	SMA female



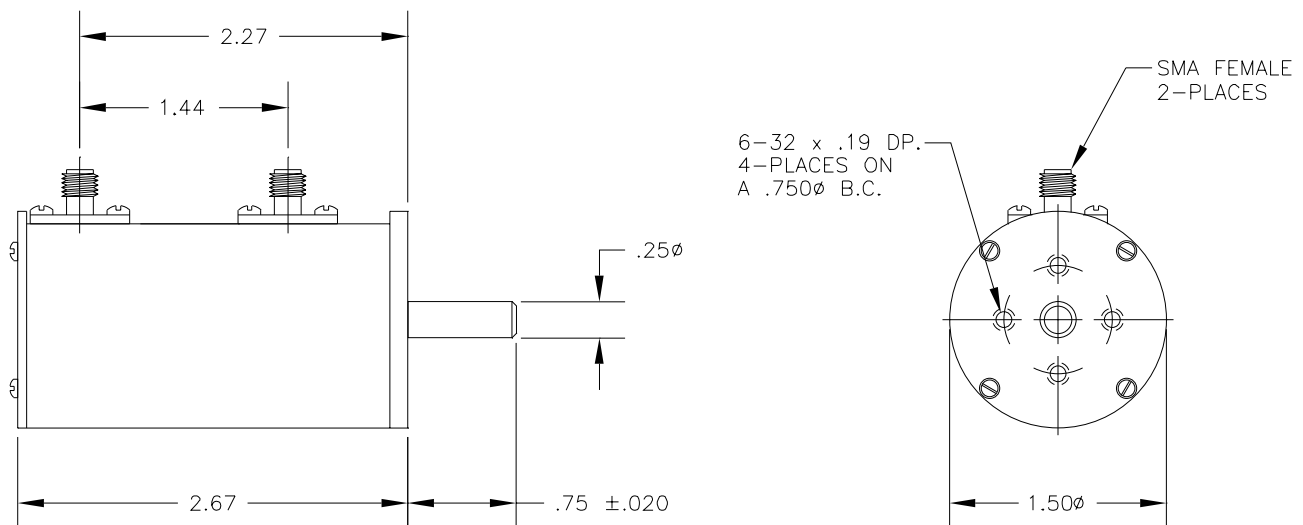
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Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss	RF Connectors
50R-029	DC-2000 MHz	0-70 dB in 10 dB steps	+/- .5 dB or 1% DC-500 MHz +/- .5 dB or 2% 500-1000 MHz +/- .5 dB or 3% 1000-2000 MHz	1.2:1 maximum DC-1000 MHz 1.4:1 maximum 1000-2000 MHz	.3 dB maximum DC-1000 MHz .5 dB maximum 1000-2000 MHz	BNC, N, SMA or TNC female
50R-043	DC-1000 MHz	0-100 dB in 10 dB steps	+/- .5 dB or 1% DC-500 MHz +/- .5 dB or 2% 500-1000 MHz	1.2:1 maximum	.3 dB maximum	BNC, N, SMA or TNC female
50R-124	DC-2500 MHz	0-70 dB in 10 dB steps	+/- .5 dB or 2%	1.4:1 maximum	.5 dB maximum	BNC, N, SMA or TNC female

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum



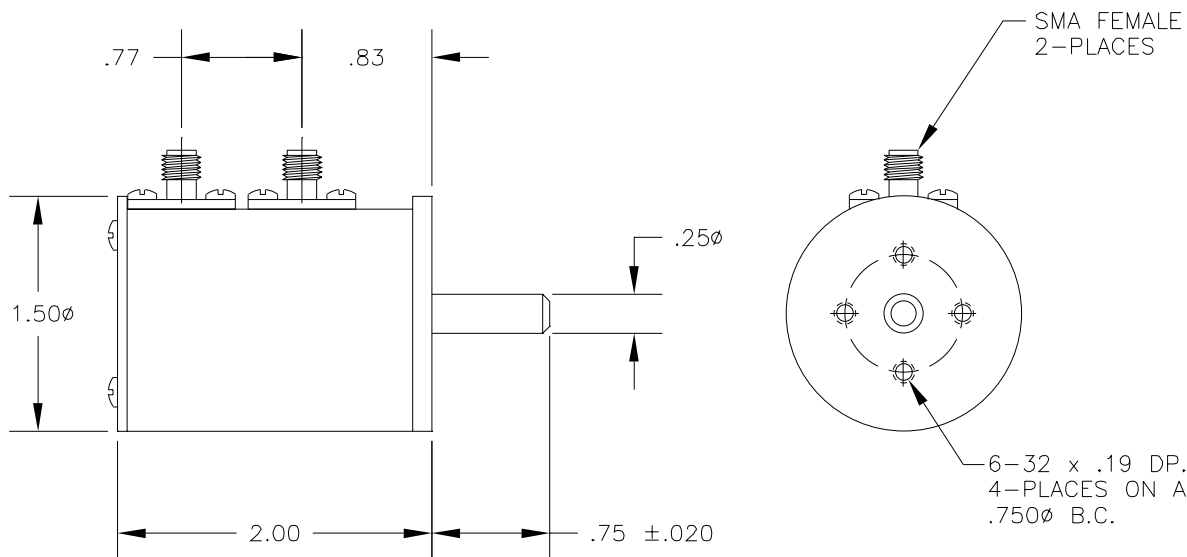
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Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss	RF Input Power
50R-019	DC-2000 MHz	0-10 dB in 1 dB steps	+/- .2 dB maximum DC-1000 MHz +/- .4 dB maximum 1000-2000 MHz	1.2:1 maximum DC-1000 MHz 1.4:1 maximum 1000-2000 MHz	.2 dB maximum DC-1000 MHz .4 dB maximum 1000-2000 MHz	2 Watts average 1000 Watts peak
50R-028	DC-1000 MHz	0-1 dB in .1 dB steps	+/- .01 dB maximum DC-30 MHz +/- .03 dB maximum 30-500 MHz +/- .05 dB maximum 500-1000 MHz	1.2:1 maximum DC-1000 MHz	.7 dB maximum DC-1000 MHz	2 Watts average 1000 Watts peak
50R-248	DC-2500 MHz	0-10 dB in 1 dB steps	+/- .25 dB maximum DC-1100 MHz +/- .6 dB maximum 1100-2500 MHz	1.25:1 maximum DC-1100 MHz 1.5:1 maximum 1100-2500 MHz	.25 dB maximum DC-1100 MHz .5 dB maximum 1100-2500 MHz	2 Watts average 1000 Watts peak
50R-249	DC-2500 MHz	0-1 dB in .1 dB steps	+/- .6 dB maximum DC-2500 MHz	1.2:1 maximum DC-1100 MHz 1.4:1 maximum 1100-2500 MHz	1 dB maximum DC-2500 MHz	2 Watts average 1000 Watts peak

Common Specifications

Impedance	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	SMA, BNC or TNC female



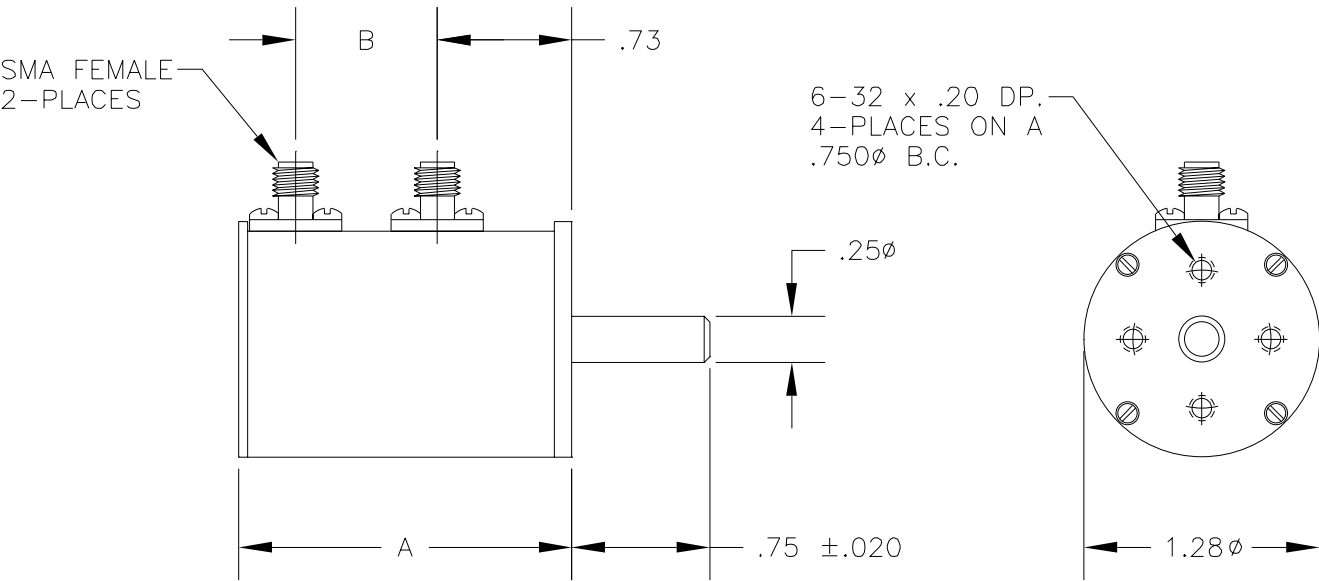
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Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50R-083	DC-2000 MHz	0-10 dB in 1 dB steps	+/- .2 dB maximum DC-1000 MHz +/- .4 dB maximum 1000-2000 MHz	1.2:1 maximum DC-1000 MHz 1.4:1 maximum 1000-2000 MHz	.2 dB maximum DC-1000 MHz .4 dB maximum 1000-2000 MHz
50R-084	DC-2000 MHz	0-60 dB in 10 dB steps	+/- .5 dB or 1% DC-500 MHz +/- .5 dB or 2% 500-1000 MHz +/- .5 dB or 3% 1000-2000 MHz	1.2:1 maximum DC-1000 MHz 1.4:1 maximum 1000-2000 MHz	.3 dB maximum DC-1000 MHz .5 dB maximum 1000-2000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	SMA female



MODEL	DIM A	DIM B
50R-083	1.83	.77
50R-084	2.40	1.36

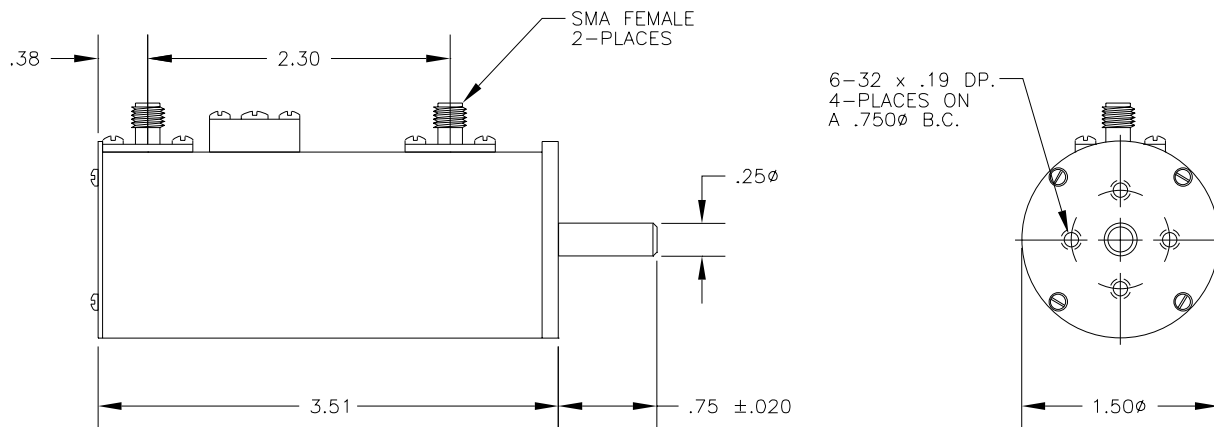
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Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50R-137	DC-2550 MHz	0-80 dB in 10 dB steps	+/- .3 dB or 1% DC-500 MHz +/- .5 dB or 2% 500-1000 MHz +/- .5 dB or 3% 1000-1500 MHz +/- .5 dB or 3% 1500-2550 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-2550 MHz	1 dB maximum
50R-234	DC-2550 MHz	0-100 dB in 10 dB steps	+/- .3 dB or 1% DC-500 MHz +/- .5 dB or 2% 500-1000 MHz +/- .5 dB or 3% 1000-1500 MHz +/- 4% 1500-2550 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-1500 MHz 1.7:1 maximum 1500-2550 MHz	1 dB maximum

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	N,SMA or TNC female

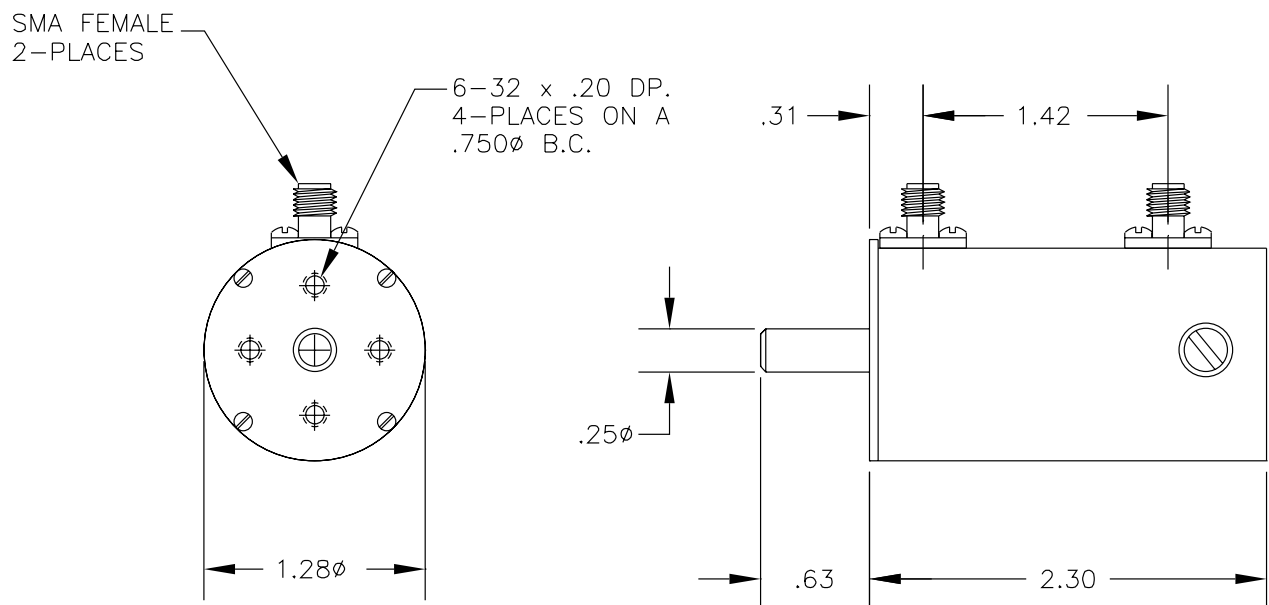


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Rotary Attenuator

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50R-096	DC-1200 MHz	0-100 dB in 10 dB steps	+/-1.5 %	1.3:1 maximum	.2 dB maximum

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in c'lockwise direction	30 degrees with stops at minimum and maximum	SMA female



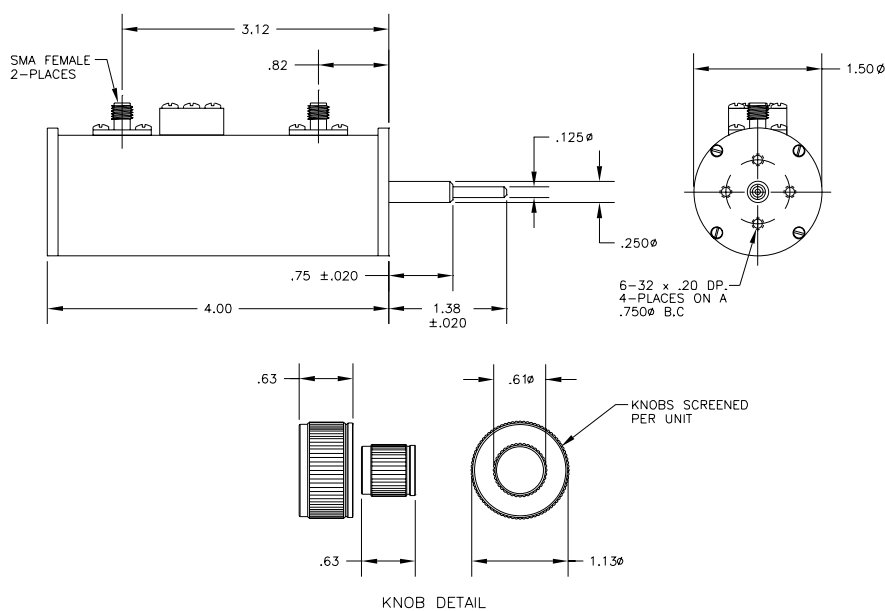
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Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50DR-001	DC-1000 MHz	0-110 dB in 1 dB steps	+/- .2 dB maximum or 1% DC-500 MHz +/- .3 dB maximum or 2% 500-1000 MHz	1.2:1 maximum DC-500 MHz 1.4:1 maximum 500-1000 MHz	.5 dB maximum DC-1000 MHz
50DR-010	DC-2000 MHz	0-30 dB in 1 dB steps	+/- .3 dB maximum or 1% DC-1000 MHz +/- .5 dB maximum or 2% 1000-2000 MHz	1.4:1 maximum DC-2000 MHz	.5 dB maximum DC-1000 MHz .7 dB maximum 1000-2000 MHz
50DR-035	DC-2000 MHz	0-70 dB in 1 dB steps	+/- .5 dB maximum or 3% DC-2000 MHz	1.25:1 maximum DC-1000 MHz 1.5:1 maximum 1000-2000 MHz	.6 dB maximum DC-1000 MHz 1 dB maximum 1000-2000 MHz
50DR-046	DC-2500 MHz	0-50 dB in 1 dB steps	+/- .2 dB maximum or 1% DC-500 MHz +/- .3 dB maximum or 3% 500-1000 MHz +/- .4 dB maximum or 3% 1000-2500 MHz	1.2:1 maximum DC-500 MHz 1.4:1 maximum 500-1000 MHz 1.5:1 maximum 1000-2500 MHz	.5 dB maximum DC-1000 MHz 1 dB maximum 1000-2500 MHz
50DR-061	DC-2200 MHz	0-80 dB in 1 dB steps	+/- .5 dB maximum or 3% DC-2200 MHz	1.25:1 maximum DC-1000 MHz 1.5:1 maximum 1000-2200 MHz	.6 dB maximum DC-1000 MHz 1 dB maximum 1000-2200 MHz
50DR-077	DC-2000 MHz	0-90 dB in 1 dB steps	+/- .5 dB maximum or 1% DC-500 MHz +/- .5 dB maximum or 2% 500-2000 MHz	1.2:1 maximum DC-500 MHz 1.4:1 maximum 500-1000 MHz 1.5:1 maximum 1000-2000 MHz	.5 dB maximum DC-1000 MHz 1 dB maximum 1000-2000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connector
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC, N, SMA or TNC female



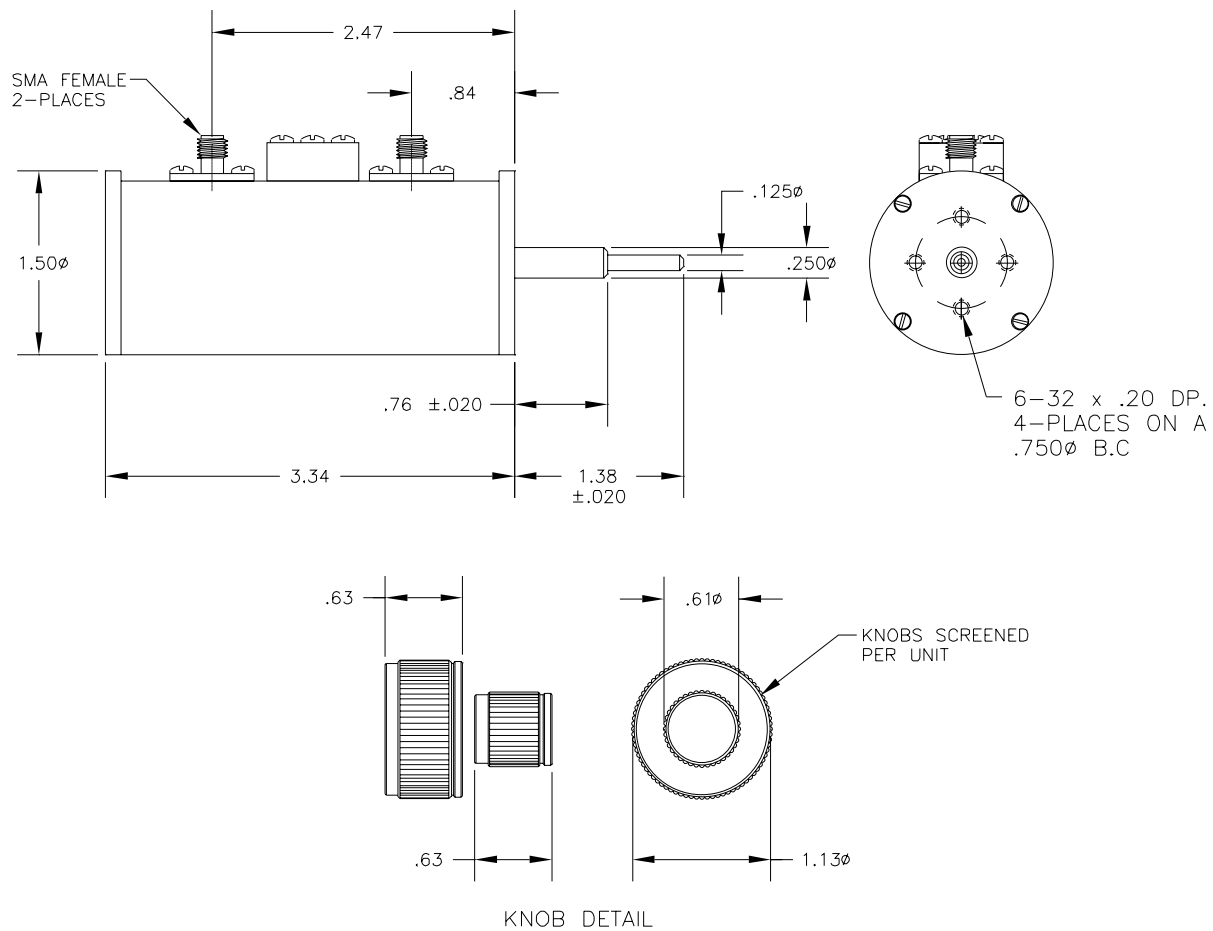
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Dual Concentric Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50DR-055	DC-2000 MHz	0-30 dB in 1 dB steps	+/- .25 dB maximum or 2% DC-1000 MHz +/- .4 dB maximum or 3% 1000-2000 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-2000 MHz	.8 dB maximum
50DR-060	DC-2000 MHz	0-11 dB in .1 dB steps	+/- .05 dB maximum .1dB steps DC-1100 MHz +/- .06 dB maximum .1dB steps 1100-2000 MHz +/- .2 dB maximum 1dB steps DC-1100 MHz +/- .4 dB maximum 1dB steps 1100-2000 MHz	1.3:1 maximum	1 dB maximum DC-1100 MHz 1.25 dB maximum 1100-2000 MHz
50DR-063	DC-1100 MHz	0-50 dB in 1 dB steps	+/- .2 dB maximum DC-250 MHz +/- .5 dB maximum 250-500 MHz +/- 1 dB maximum 500-1100 MHz	1.1:1 maximum DC-250 MHz 1.2:1 maximum 250-500 MHz 1.4:1 maximum 500-1100 MHz	.5 dB maximum

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connector
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC, N, SMA or TNC female

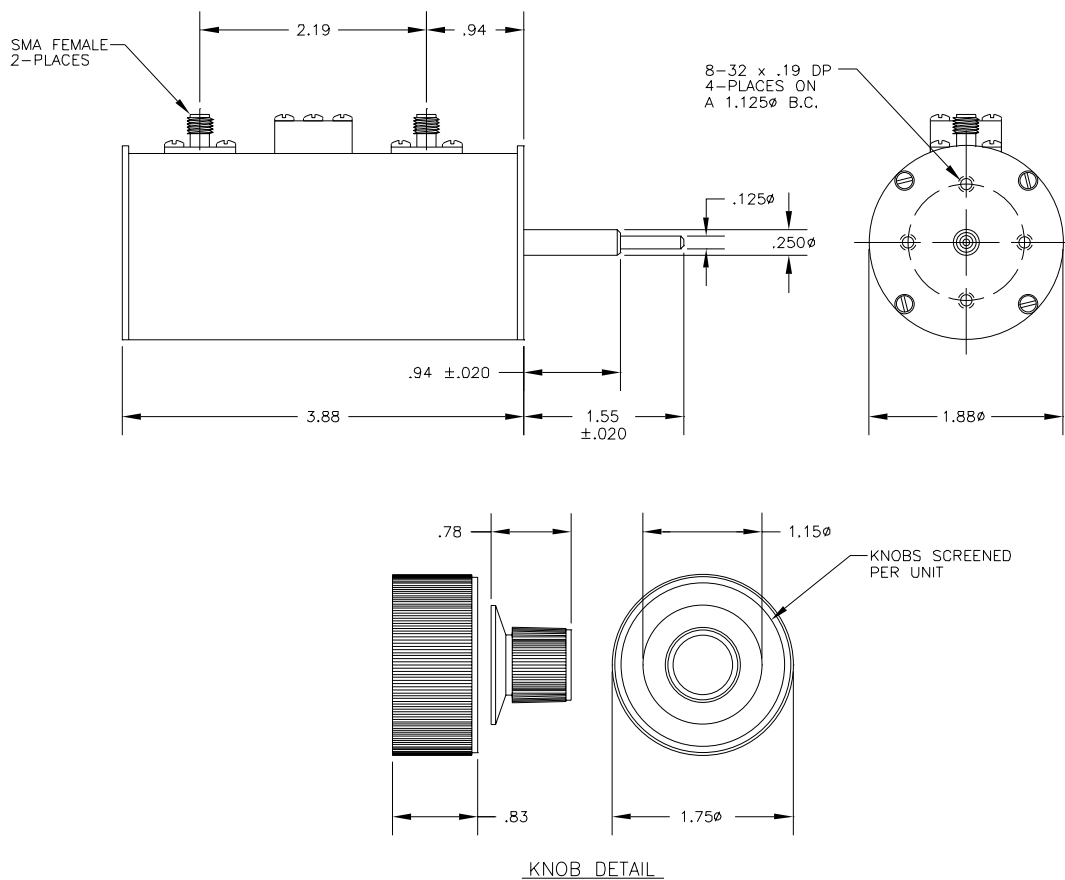


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Dual Concentric Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss	RF Connectors
50DR-003	DC-1000 MHz	0-50 dB in 1 dB steps	+/- .2 dB DC-250 MHz +/- .5 dB 250-500 MHz +/- 1 dB 500-1000 MHz	1.1:1 maximum DC-250 MHz 1.2:1 maximum 250-500 MHz 1.4:1 maximum 500-1000 MHz	.5 dB maximum DC-1000 MHz	BNC,N,SMA or TNC female
75DR-003	DC-1000 MHz	0-50 dB in 1 dB steps	+/- .2 dB DC-250 MHz +/- .5 dB 250-500 MHz +/- 1 dB 500-1000 MHz	1.1:1 maximum DC-250 MHz 1.2:1 maximum 250-500 MHz 1.4:1 maximum 500-1000 MHz	.5 dB maximum DC-1000 MHz	BNC, F, or N female

Model	Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing
50DR-003	50 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum
75DR-003	75 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum



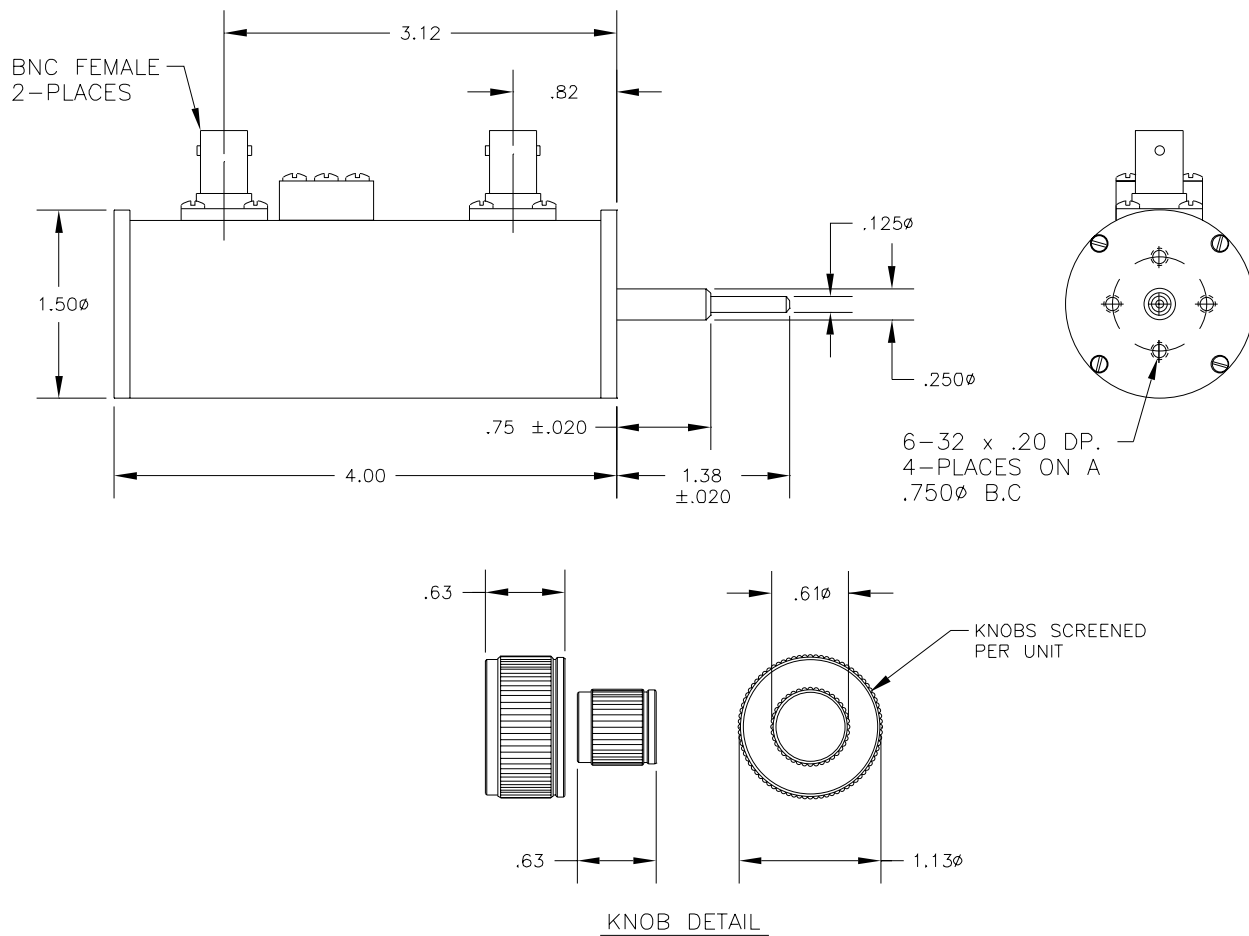
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Dual Concentric Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
75DR-006	DC-600 MHz	0-80 dB in 1 dB steps	+/- .1 dB 0-10 dB +/- .3 dB 10-80 dB DC-100 MHz +/- .2 dB 0-10 dB +/- .6 dB 10-80 dB 100-400 MHz +/- .3 dB 0-10 dB +/- .8 dB 10-80 dB 400-600 MHz	1.3:1 maximum DC-600 MHz	.75 dB maximum DC-600 MHz
75DR-009	DC-1000 MHz	0-70 dB in 1 dB steps	+/- .5 dB or 3% DC-1000 MHz	1.4:1 maximum	.75 dB maximum DC-1000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
75 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC, F or N female

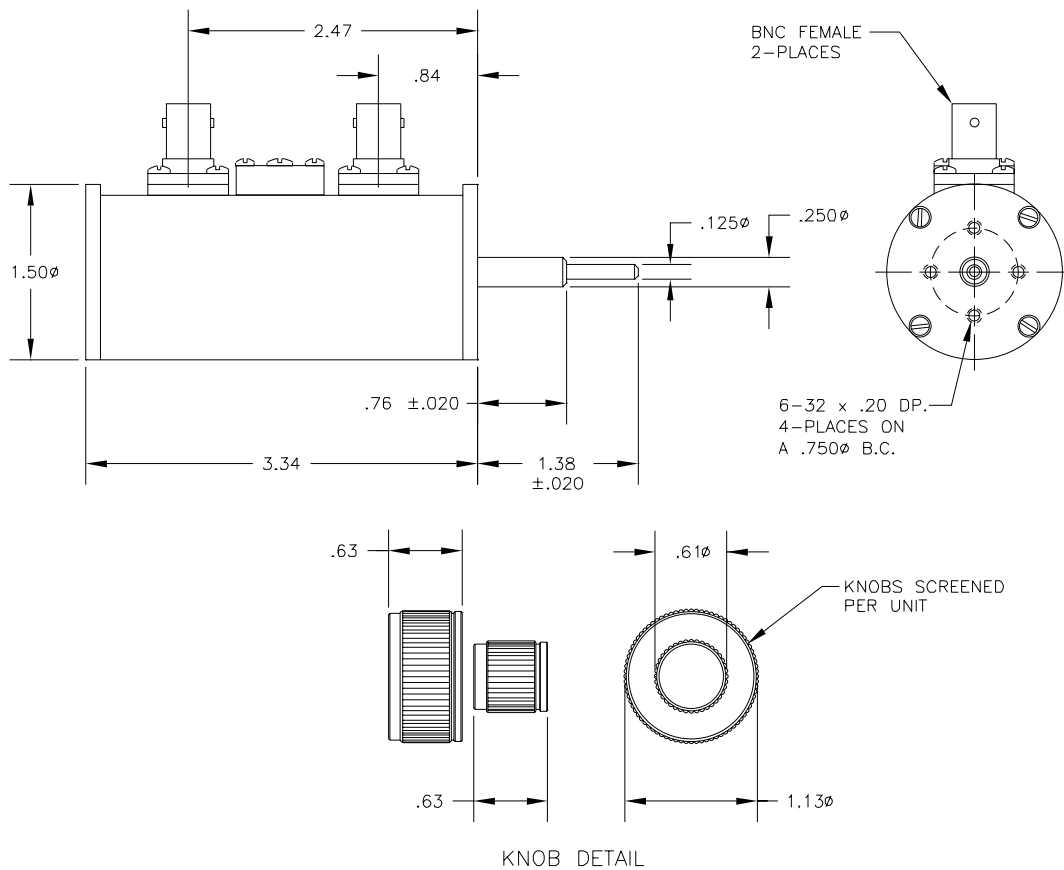


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Dual Concentric Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
75DR-015	DC-1000 MHz	0-11 dB in .1 dB steps	+/- .02 dB maximum 0-1 dB +/- .05 dB maximum 1-11 dB DC-100 MHz +/- .04 dB maximum 0-1 dB +/- .2 dB maximum 1-11 dB 100-500 MHz +/- .05 dB maximum 0-1 dB +/- .3 dB maximum 1-11 dB 500-1000 MHz	1.1:1 maximum DC-100 MHz 1.4:1 maximum 100-500 MHz 1.5:1 maximum 500-1000 MHz	1 dB maximum DC-1000 MHz
75DR-018	DC-1000 MHz	0-30 dB in 1 dB steps	+/- .2 dB 0-10 dB +/- .5 dB 10-30 dB DC-500 MHz +/- .4 dB 0-10 dB +/- .5 dB 10-30 dB 500-1000 MHz	1.25:1	.5 dB maximum DC-1000 MHz

Model	Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
75DR-015	75 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	coarse indexing, fine indexing 30 degrees w/o stops	BNC or F female
75DR-018	75 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC or F female



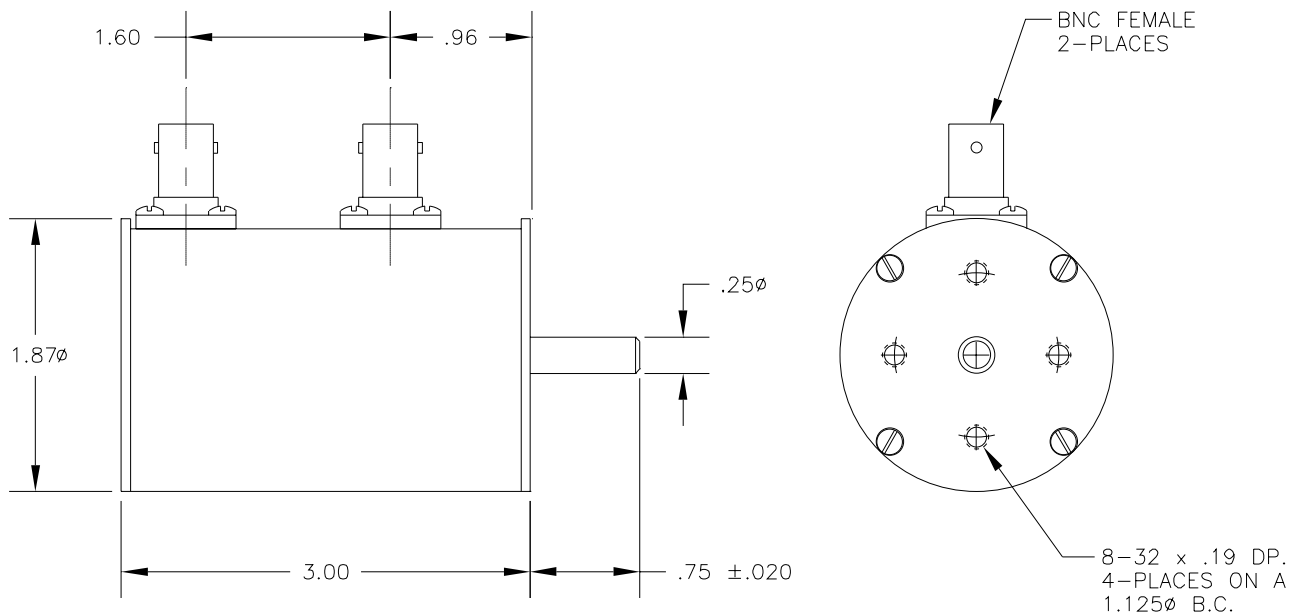
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Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
75R-001	DC-500 MHz	0-70 dB in 10 dB steps	+/- .2 dB maximum DC-30 MHz +/- .5 dB maximum 30-300 MHz +/- 1 dB maximum 300-500 MHz	1.3:1 maximum DC-500 MHz	.4 dB maximum DC-500 MHz
75R-055	DC-1000 MHz	0-70 dB in 10 dB steps	+/- .2 dB maximum DC-30 MHz +/- .5 dB maximum 30-500 MHz +/- 1 dB maximum 500-1000 MHz	1.3:1 maximum DC-500 MHz 1.5:1 maximum 500-1000 MHz	.4 dB maximum DC-1000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
75 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in c'lockwise direction	30 degrees with stops at minimum and maximum	BNC, F or N female



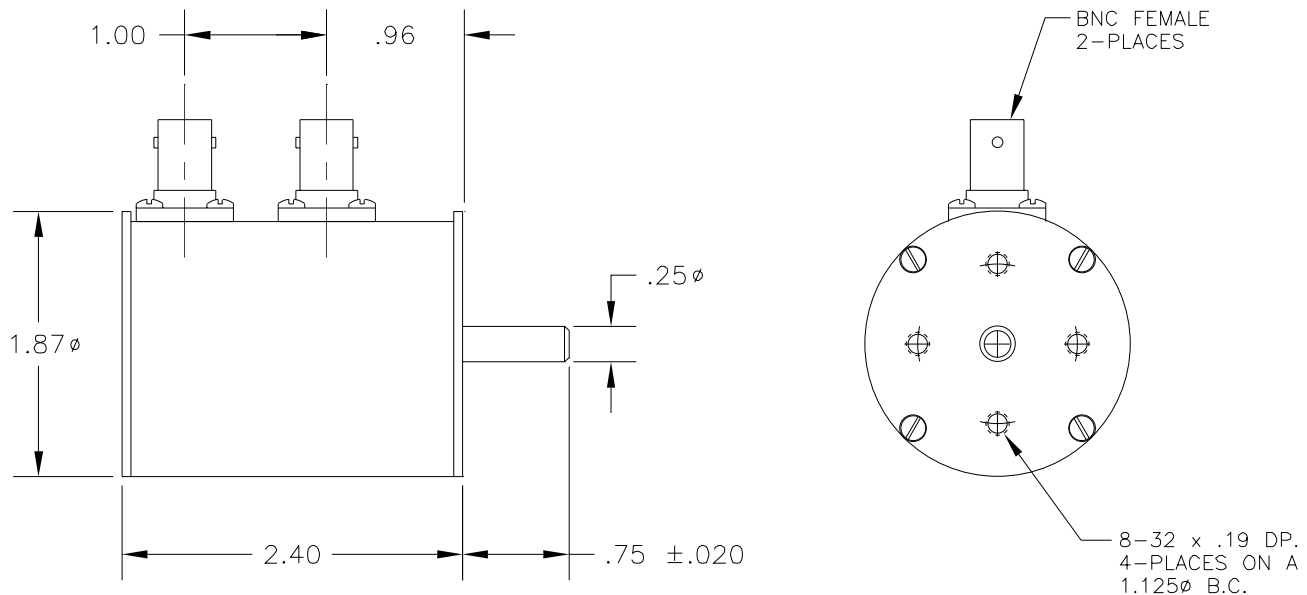
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Rotary Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
75R-002	DC-500 MHz	0-10 dB in 1 dB steps	+/- .1 dB maximum DC-30 MHz +/- .2 dB maximum 30-300 MHz +/- .3 dB maximum 300-500 MHz	1.3:1 maximum DC-500 MHz	.4 dB maximum DC-500 MHz
75R-006	DC-500 MHz	0-1 dB in .1 dB steps	+/- .01 dB maximum DC-30 MHz +/- .02 dB maximum 30-300 MHz +/- .03 dB maximum 300-500 MHz	1.3:1 maximum DC-500 MHz	.7 dB maximum DC-500 MHz
75R-056	DC-1000 MHz	0-10 dB in 1 dB steps	+/- .1 dB maximum DC-30 MHz +/- .2 dB maximum 30-500 MHz +/- .3 dB maximum 500-1000 MHz	1.3:1 maximum DC-500 MHz 1.5:1 maximum 500-1000 MHz	.4 dB maximum DC-1000 MHz
75R-057	DC-1000 MHz	0-1 dB in .1 dB steps	+/- .04 dB maximum DC-500 MHz +/- .08 dB maximum 500-1000 MHz	1.3:1 maximum DC-500 MHz 1.4:1 maximum 500-1000 MHz	.7 dB maximum DC-1000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
75 Ohms	1 Watt average 1000 Watts peak	-20° C to +85° C	Attenuation increases in c'lockwise direction	30 degrees with stops at minimum and maximum	BNC, F or N female



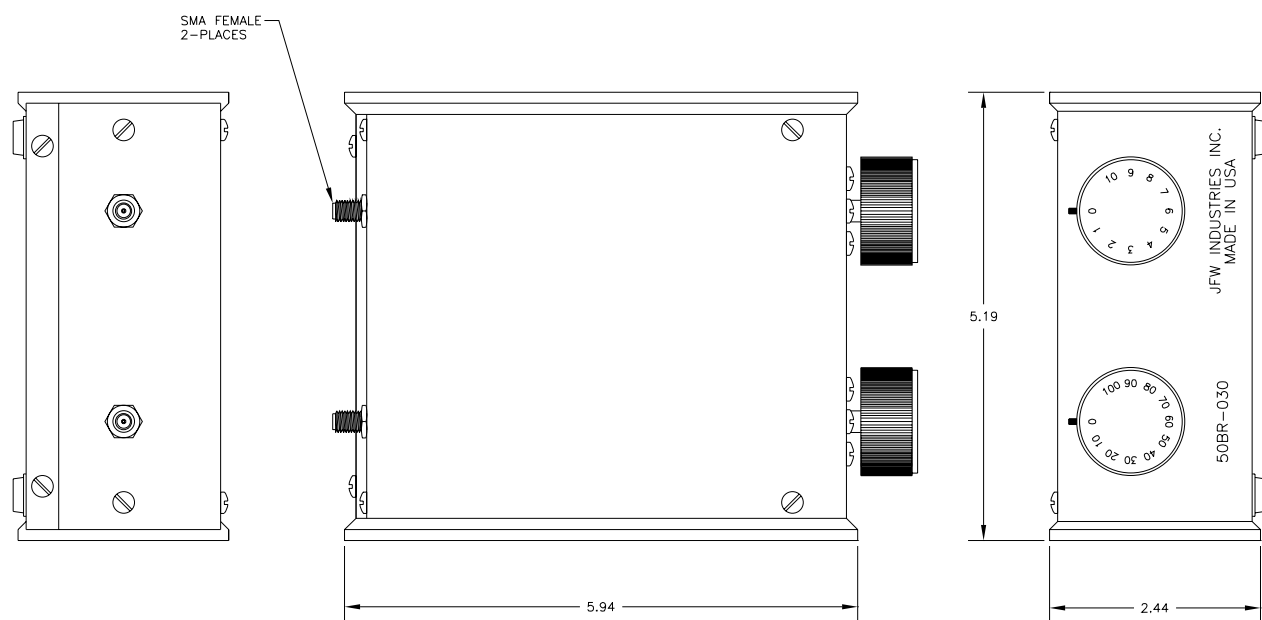
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Bench Top Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50BR-001	DC-2000 MHz	0-110 dB in 1 dB steps	+/- .3 dB maximum or 1% DC-500 MHz +/- .5 dB maximum or 2% 500-1000 MHz +/- .5 dB maximum or 3% 1000-1500 MHz +/- .5 dB maximum or 4% 1500-2000 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-1500 MHz 1.7:1 maximum 1500-2000 MHz	.75 dB maximum DC-1000 MHz 1.25 dB maximum 1000-2000 MHz
50BR-016	DC-2550 MHz	0-90 dB in 1 dB steps	+/- .3 dB maximum or 1% DC-500 MHz +/- .5 dB maximum or 2% 500-1000 MHz +/- .5 dB maximum or 3% 1000-1500 MHz +/- 4% 1500-2550 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-1500 MHz 1.7:1 maximum 1500-2550 MHz	1.5 dB nominal DC-2550 MHz
50BR-030	DC-2550 MHz	0-110 dB in 1 dB steps	+/- .3 dB maximum or 1% DC-500 MHz +/- .5 dB maximum or 2% 500-1000 MHz +/- .5 dB maximum or 3% 1000-1500 MHz +/- 4% 1500-2550 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-1500 MHz 1.7:1 maximum 1500-2550 MHz	1.5 dB nominal DC-2550 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC, N, SMA or TNC female



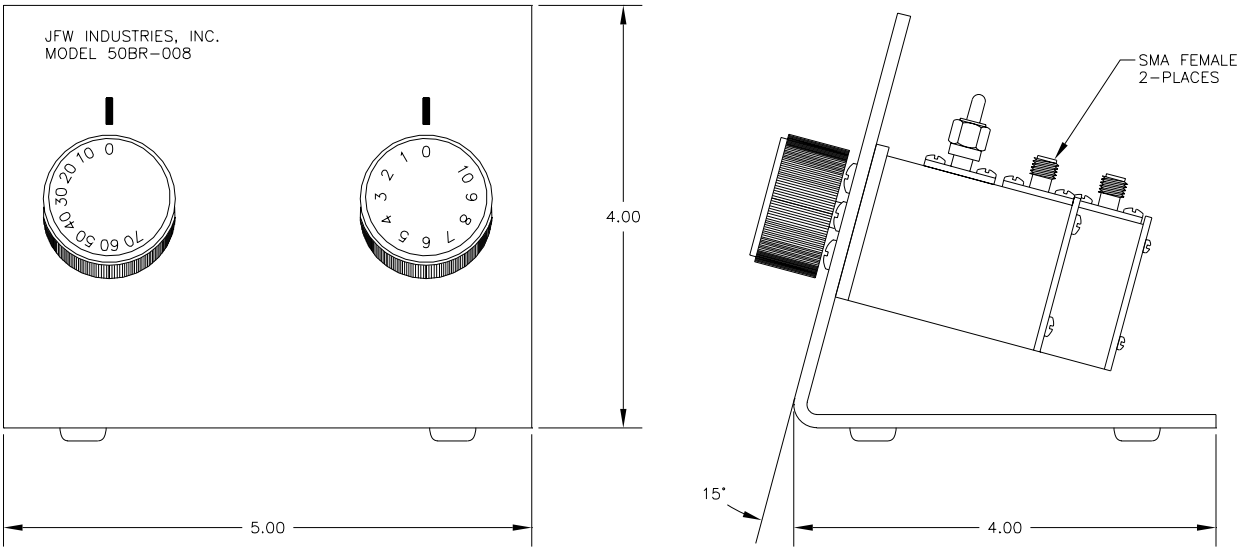
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Bench Top Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50BR-008	DC-2000 MHz	0-80 dB in 1 dB steps	+/- .5 dB maximum or 1% DC-500 MHz +/- .5 dB maximum or 2% 500-1000 MHz +/- .5 dB maximum or 3% 1000-2000 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-2000 MHz	.5 dB maximum DC-1000 MHz 1 dB maximum 1000-2000 MHz
50BR-009	DC-1000 MHz	0-110 dB in 1 dB steps	+/- .5 dB maximum or 1% DC-500 MHz +/- .5 dB maximum or 2% 500-1000 MHz	1.3:1 maximum DC-1000 MHz	1.2 dB maximum DC-1000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC, SMA or N female



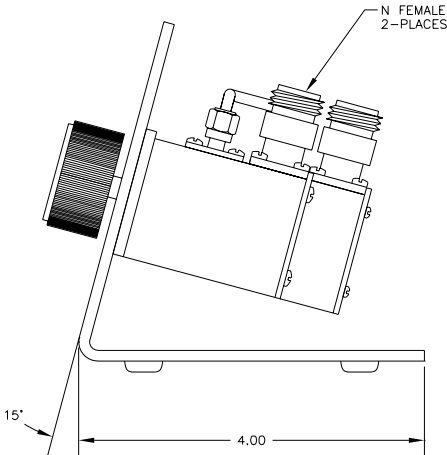
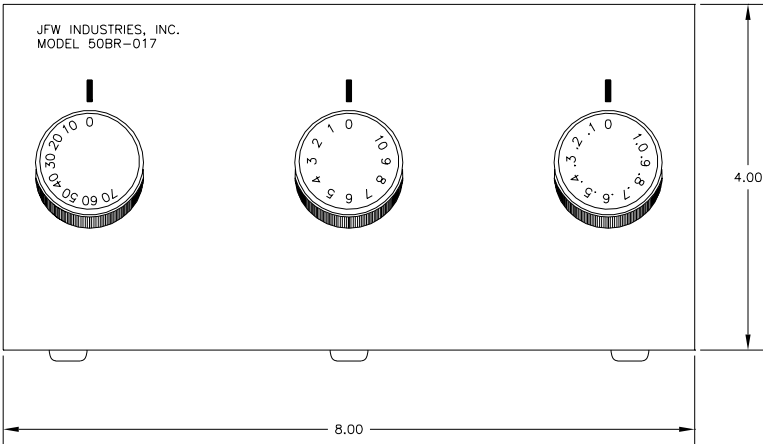
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Bench Top Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50BR-017	DC-1000 MHz	0-81 dB in .1 dB steps	+/- .02 dB 0-1 dB +/- .1 dB 1-10 dB +/- .2 dB 10-81 dB DC-30 MHz +/- .04 dB 0-1 dB +/- .2 dB 1-10 dB +/- .5 dB 10-81 dB 30-500 MHz +/- .06 dB 0-1 dB +/- .3 dB 1-10 dB +/- .8 dB 10-81 dB 500-1000 MHz	1.1:1 maximum DC-30 MHz 1.3:1 maximum 30-500 MHz 1.5:1 maximum 500-1000 MHz	1.25 dB maximum DC-1000 MHz
50BR-022	DC-1000 MHz	0-111 dB in .1 dB steps	+/- .02 dB 0-1 dB +/- .1 dB 1-10 dB +/- .2 dB or .5% 10-111 dB DC-30 MHz +/- .04 dB 0-1 dB +/- .2 dB 1-10 dB +/- .5 dB or 1% 10-111 dB 30-500 MHz +/- .06 dB 0-1 dB +/- .3 dB 1-10 dB +/- .5 dB or 2% 10-111 dB 500-1000 MHz	1.1:1 maximum DC-30 MHz 1.3:1 maximum 30-500 MHz 1.5:1 maximum 500-1000 MHz	1.25 dB maximum DC-1000 MHz

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-20° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum	BNC, N, SMA or TNC female

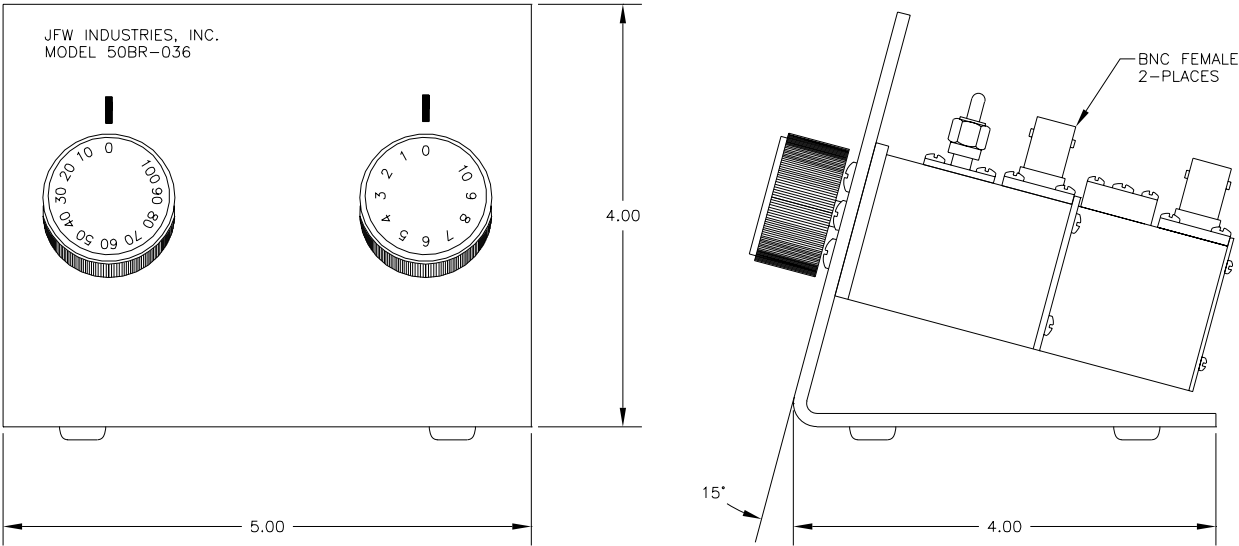


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Bench Top Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50BR-036	DC-2000 MHz	0-110 dB in 1 dB steps	+/- .3 dB or 1% DC-500 MHz +/- .5 dB or 2% 500-1000 MHz +/- .5 dB or 3% 1000-1500 MHz +/- .5 dB or 4% 1500-2000 MHz	1.3:1 maximum DC-1000 MHz 1.5:1 maximum 1000-1500 MHz 1.7:1 maximum 1500-2000 MHz	.75 dB maximum DC-1000 MHz 1.25 dB maximum 1000-2000 MHz

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-40° C to +85° C	Attenuation increases in clockwise direction	30 degrees	BNC, N, SMA or TNC female



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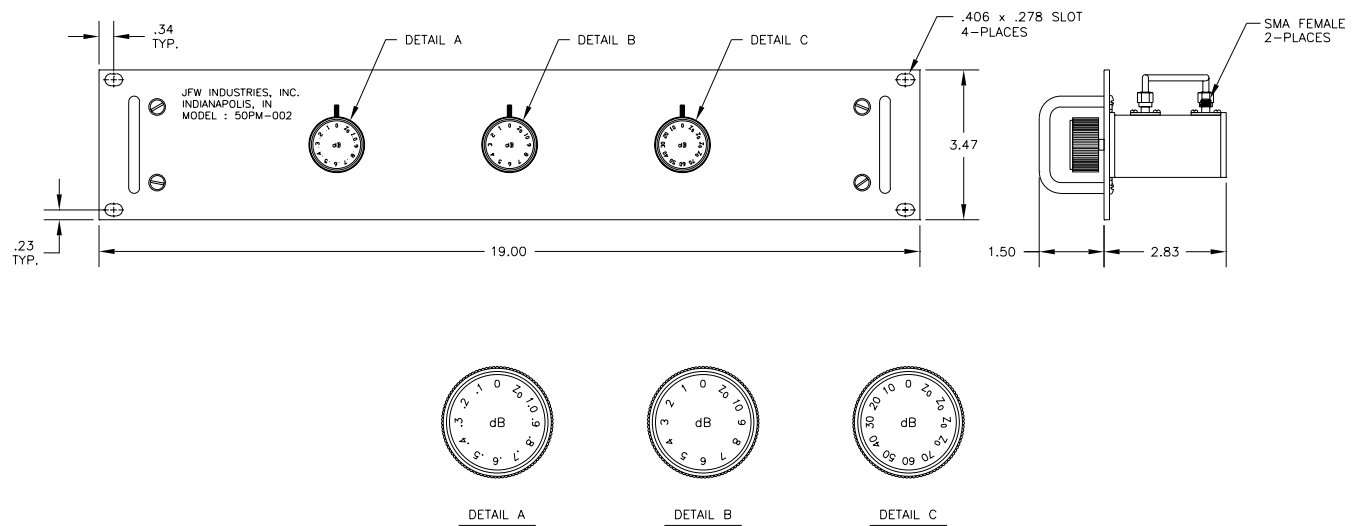
Panel Mounted Attenuators

Model	Frequency Range	Attenuation Range	Attenuation Accuracy	VSWR	Insertion Loss
50PM-002	DC-1000 MHz	0-81 dB in .1 dB steps	+/- .02 dB 0-1 dB +/- .1 dB 1-10 dB +/- .2 dB 10-81 dB DC-30 MHz +/- .04 dB 0-1 dB +/- .2 dB 1-10 dB +/- .5 dB 10-81 dB 30-500 MHz +/- .06 dB 0-1 dB +/- .3 dB 1-10 dB +/- .8 dB 10-81 dB 500-1000 MHz	1.1:1 maximum DC-30 MHz 1.3:1 maximum 30-500 MHz 1.5:1 maximum 500-1000 MHz	1.25 dB maximum DC-1000 MHz
50PM-003 *	DC-1000 MHz	0-50 dB in 1 dB steps	+/- .2 dB DC-250 MHz +/- .5 dB 250-500 MHz +/- 1 dB 500-1000 MHz	1.1:1 maximum DC-250 MHz 1.2:1 maximum 250-500 MHz 1.4:1 maximum 500-1000 MHz	.5 dB maximum DC-1000 MHz
50PM-009 *	DC-2200 MHz	0-80 dB in 1 dB steps	+/- .5 dB or 3%	1.25:1 maximum DC-1000 MHz 1.5:1 maximum 1000-2200 MHz	.6 dB maximum DC-1000 MHz 1 dB maximum 1000-2200 MHz

* PANEL AVAILABLE WITH UP TO EIGHT MANUAL VARIABLE ATTENUATORS

Common Specifications

Impedance	RF Input Power	Operating Temperature	Standard Rotation	Indexing	RF Connectors
50 Ohms	2 Watts average 1000 Watts peak	-40° C to +85° C	Attenuation increases in clockwise direction	30 degrees with stops at minimum and maximum / except 50PM-002 which has no stops	BNC, N, SMA or TNC female

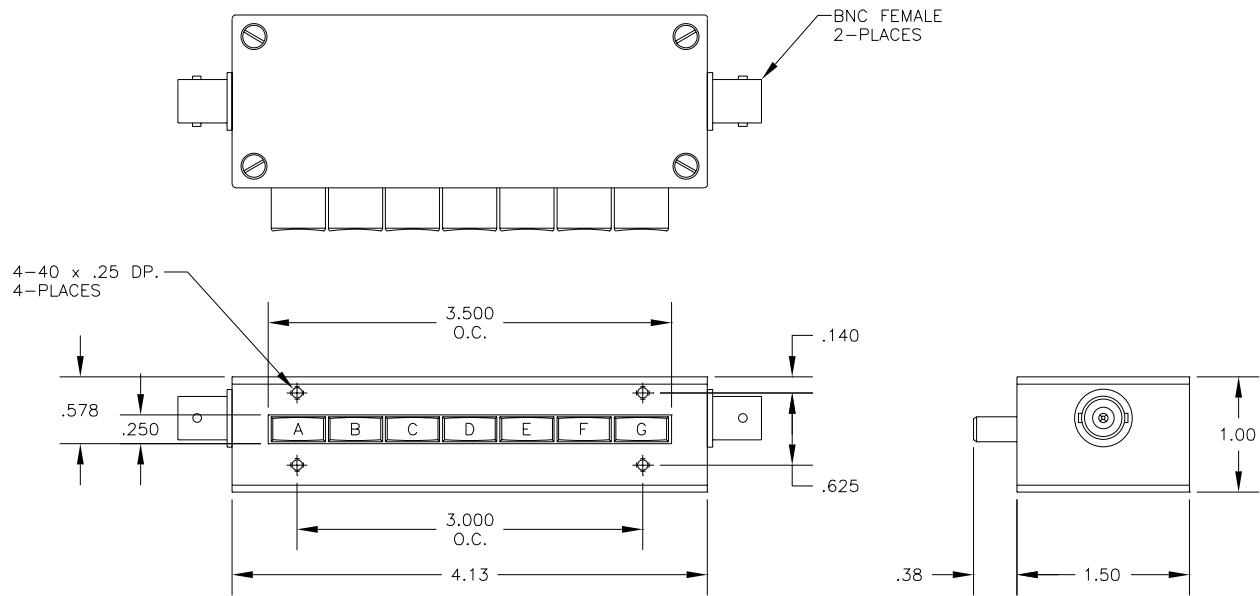


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Pushbutton Attenuators

Model	Frequency Range	Impedance	Attenuation Range / Steps	Attenuation Accuracy	VSWR Maximum
50B-001	DC-750 MHz	50 Ohms	0-65 dB in 1 dB steps / 1,2,4,8,10,20 and 20 dB	+/- .3 dB DC-100 MHz +/- .5 dB 100-300 MHz +/- .8 dB 300-500 MHz +/- 1.3 dB 500-750 MHz	1.1:1 DC-100 MHz 1.25:1 100-500 MHz 1.4:1 500-750 MHz
50B-002	DC-750 MHz	50 Ohms	0-45.5 dB in .5 dB steps / .5,1,2,4,8,10 and 20 dB	+/- .2 dB DC-100 MHz +/- .3 dB 100-300 MHz +/- .5 dB 300-500 MHz +/- .75 dB 500-750 MHz	1.1:1 DC-100 MHz 1.25:1 100-500 MHz 1.4:1 500-750 MHz
75B-001	DC-500 MHz	75 Ohms	0-65 dB in 1 dB steps / 1,2,4,8,10,20 and 20 dB	+/- .3 dB DC-100 MHz +/- .5 dB 100-300 MHz +/- .8 dB 300-500 MHz	1.1:1 DC-100 MHz 1.2:1 100-300 MHz 1.3:1 300-500 MHz
75B-002	DC-500 MHz	75 Ohms	0-45.5 dB in .5 dB steps / .5,1,2,4,8,10 and 20 dB	+/- .2 dB DC-100 MHz +/- .3 dB 100-300 MHz +/- .5 dB 300-500 MHz	1.1:1 DC-100 MHz 1.2:1 100-300 MHz 1.3:1 300-500 MHz

Model	Insertion Loss Maximum	Power Rating	Operating Temperature	RF Connectors
50B-001	1 dB @ 500 MHz	1 Watt average, 1000 Watts peak	-20° C to +85° C	BNC female
50B-002	1 dB @ 500 MHz	1 Watt average, 1000 Watts peak	-20° C to +85° C	BNC female
75B-001	1 dB @ 500 MHz	1 Watt average, 1000 Watts peak	-20° C to +85° C	BNC or F female
75B-002	1 dB @ 500 MHz	1 Watt average, 1000 Watts peak	-20° C to +85° C	BNC or F female



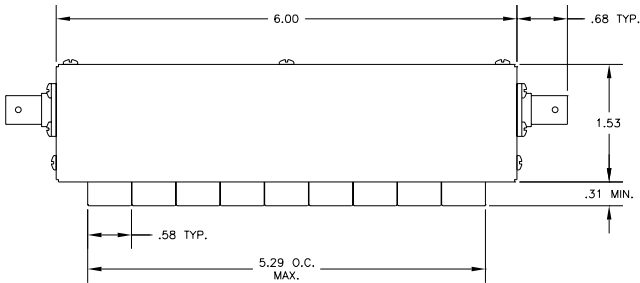
MODEL #	A	B	C	D	E	F	G
50B-001	1	2	4	8	10	20	20
50B-002	.5	1	2	4	8	10	20

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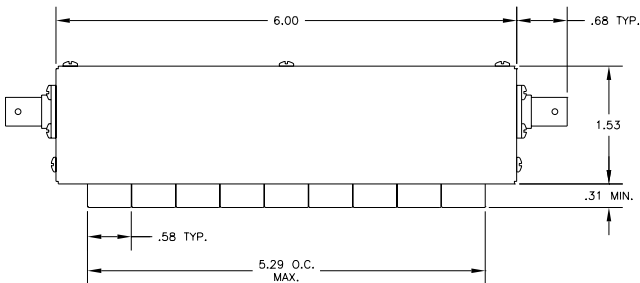
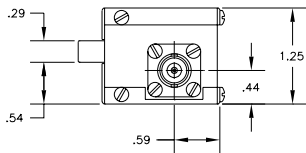
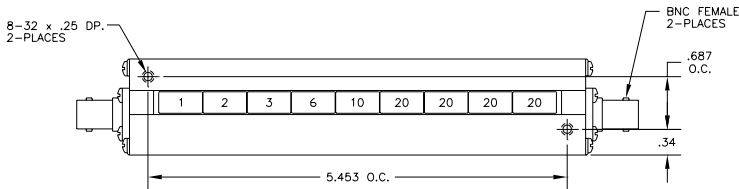
Pushbutton Attenuators

Model	Frequency Range	Impedance	Attenuation Range / Steps	Attenuation Accuracy	VSWR Maximum
50B-043	DC-750 MHz	50 Ohms	0-102 dB in 1 dB steps / 1,2,3,6,10,20,20,20 and 20 dB	+/- .3 dB or 1%	1.4:1
50B-044	DC-750 MHz	50 Ohms	0-82.5 dB in .5 dB steps / .5,1,2,3,6,10,20,20 and 20 dB	+/- .3 dB or 1%	1.4:1

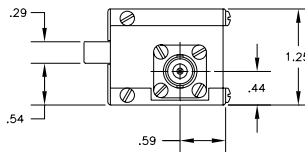
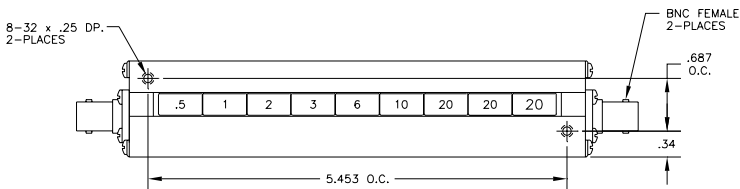
Model	Insertion Loss Maximum	Power Rating	Operating Temperature	RF Connectors
50B-043	1.5 dB	1 Watt average, 1000 Watts peak	-20° C to +85° C	BNC, N, SMA and TNC female
50B-044	1.5 dB	1 Watt average, 1000 Watts peak	-20° C to +85° C	BNC, N, SMA and TNC female



50B-043



50B-044

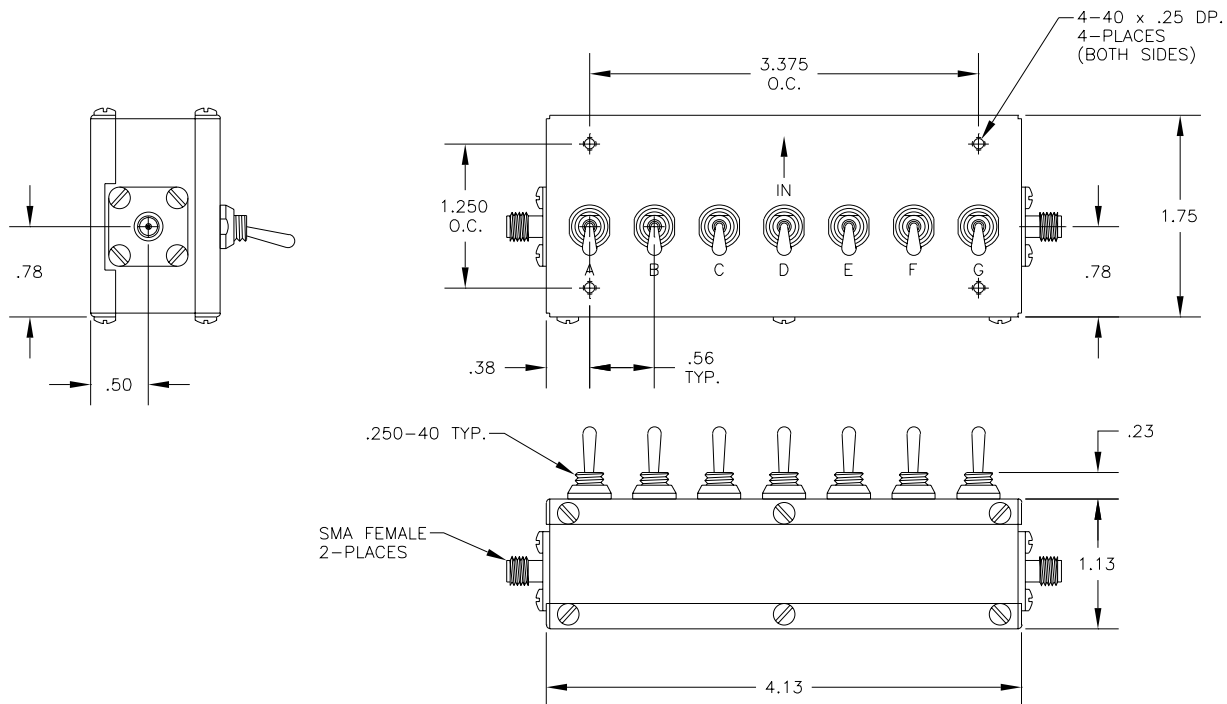


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Toggle Switch Attenuators

Model	Frequency Range	Impedance	Attenuation Range / Steps	Attenuation Accuracy	VSWR Maximum
50TA-006	DC-850 MHz	50 Ohms	0-65 dB in 1 dB steps / 1,2,4,8,10,20 and 20 dB	+/- .3 dB or 2% (whichever is greater)	1.4:1
50TA-007	DC-850 MHz	50 Ohms	0-45.5 dB in .5 dB steps / .5,1,2,4,8,10 and 20 dB	+/- .3 dB or 1% DC-500 MHz +/- .3 dB or 2% 500-850 MHz	1.4:1
75TA-006	DC-500 MHz	75 Ohms	0-65 dB in 1 dB steps / 1,2,4,8,10,20 and 20 dB	+/- .3 dB or 2% (whichever is greater)	1.4:1
75TA-007	DC-500 MHz	75 Ohms	0-45.5 dB in .5 dB steps / .5,1,2,4,8,10 and 20 dB	+/- .3 dB or 1% (whichever is greater)	1.4:1

Model	Insertion Loss Maximum	Power Rating	Operating Temperature	RF Connectors
50TA-006	1.5 dB	.25 Watt average, 100 Watts peak	-20° C to +85° C	BNC, N, SMA and TNC female
50TA-007	1.5 dB	.25 Watt average, 100 Watts peak	-20° C to +85° C	BNC, N, SMA and TNC female
75TA-006	1.5 dB	.25 Watt average, 100 Watts peak	-20° C to +85° C	BNC, N and F female
75TA-007	1.5 dB	.25 Watt average, 100 Watts peak	-20° C to +85° C	BNC, N and F female



MODEL #	A	B	C	D	E	F	G
50TA-006	1	2	4	8	10	20	20
50TA-007	.5	1	2	4	8	10	20
75TA-006	1	2	4	8	10	20	20
75TA-007	.5	1	2	4	8	10	20

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