

NEW! **Low Cost Attenuators offer** **Ethernet / RS-232** **and Manual Control**



The 50BA- series from JFW Industries is an all-new line of variable attenuator systems. These plug-and-play modules come complete with Ethernet / RS-232 interfaces as well as manual control (via Momentary Lever Actuator Switches with 7-segment digital display). Designed to be easy to use, compact, and affordable; the 50BAs are available with one or two channels of attenuation (0-63dB or 0-95 dB in 1dB steps) and operate from .2-6 GHz.



50BA-001-63 Spec Sheet

50BA-001-95 Spec Sheet

50BA-002-63 Spec Sheet

50BA-002-95 Spec Sheet

JFW Industries, Inc.

Toll Free 877-887-4JFW (4539)

Call 317-887-1340

Fax 317-881-6790

Email Sales

sales@jfwindustries.com

Email JFW Engineers

jfwengr@jfwindustries.com

www.jfwindustries.com

SPECIFICATION SHEET**JFW MODEL 50BA-001-63****BENCHTOP PROGRAMMABLE ATTENUATOR ASSEMBLY**

JFW Industries, Inc.
Phone: 317-887-1340
sales@jfwindustries.com
www.jfwindustries.com

Frequency Range	200-6000 MHz
Configuration	One solid-state programmable attenuator in a mini benchtop enclosure
Impedance	50 Ohms nominal
Attenuation Range	0-63 dB in 1 dB steps
VSWR	1.8:1 maximum 200-800 MHz 1.6:1 maximum 800-6000 MHz
Attenuation Accuracy (guaranteed monotonic)	± 0.50 dB 1-3 dB ± 0.75 dB 4-7 dB ± 1.00 dB 8-11 dB ± 1.25 dB or 4% 12-63 dB (whichever is greater)
Insertion Loss	6.0 dB maximum 5.0 dB typical
RF Input Power	+20 dBm average +25 dBm (no damage)
Switching Speed	1 microsecond typical (after command is received and processed) (3 milliseconds typical processing time)
DC Supply	+12 Vdc (100-240 VAC AC/DC transformer included)
Manual Control	Momentary Lever Actuator Switch w/ 7-Segment LED Display (tap to step, hold to jog)
Remote Control	RS-232 (9600, 19200, or 38400 Baud) Ethernet (TCP, 10/100, up to 4 users)

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Remote Commands

Attenuator Control Commands:
Set Attenuator, Set Attenuator with
Response, Read Attenuator, Fade
Attenuator, Store, Recall

System Commands:
Identification, Pause
-RS-232 Only: Change Baud
-Ethernet Only: Disconnect, Close,
Message, Clear

RF Connector

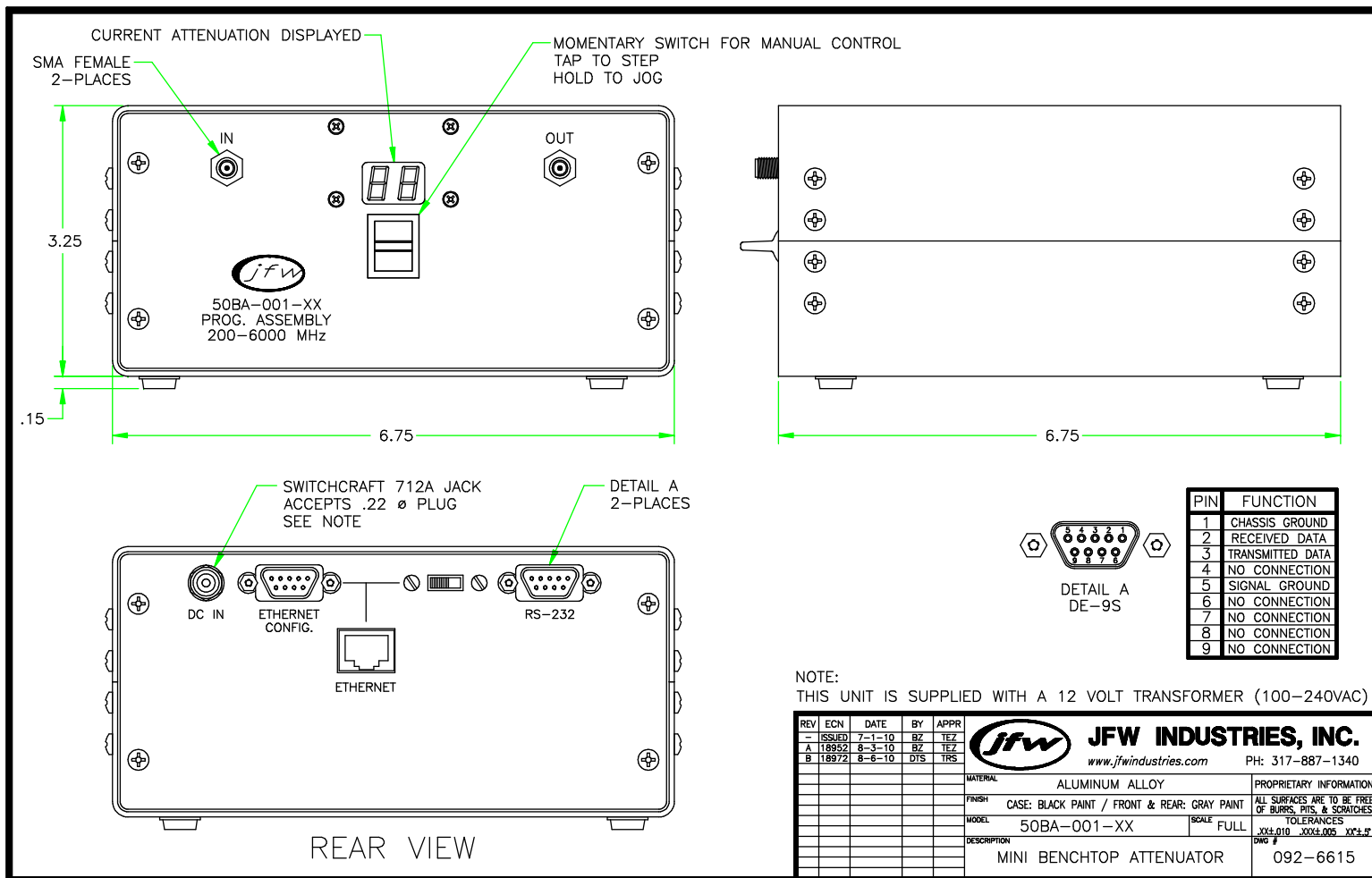
SMA female

Operating Temperature Range 0°C to +50°C

Physical Size See outline drawing 092-6615



ECR/ECN #	DATE	REV	APPR / DATE	ECR/ECN #	DATE	REV	APPR / DATE
	07/13/2010		CLK 07/13/2010				
18975	08/06/2010	A	CLK 08/06/2010				



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Frequency Range	200-6000 MHz								
Configuration	One solid-state programmable attenuator in a mini benchtop enclosure								
Impedance	50 Ohms nominal								
Attenuation Range	0-95 dB in 1 dB steps								
VSWR	2.0:1 maximum								
Attenuation Accuracy (guaranteed monotonic)	<table><tr><td>± 0.50 dB</td><td>1-3 dB</td></tr><tr><td>± 0.75 dB</td><td>4-7 dB</td></tr><tr><td>± 1.00 dB</td><td>8-11 dB</td></tr><tr><td>± 1.25 dB or 4%</td><td>12-95 dB</td></tr></table> (whichever is greater)	± 0.50 dB	1-3 dB	± 0.75 dB	4-7 dB	± 1.00 dB	8-11 dB	± 1.25 dB or 4%	12-95 dB
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± 1.00 dB	8-11 dB								
± 1.25 dB or 4%	12-95 dB								
Insertion Loss	8.0 dB typical								
RF Input Power	+20 dBm average +25 dBm (no damage)								
Switching Speed	1 microsecond typical (after command is received and processed) (3 milliseconds typical processing time)								
DC Supply	+12 Vdc (100-240 VAC AC/DC transformer included)								
Manual Control	Momentary Lever Actuator Switch w/ 7-Segment LED Display (tap to step, hold to jog)								
Remote Control	RS-232 (9600, 19200, or 38400 Baud) Ethernet (TCP, 10/100, up to 4 users)								
Remote Commands	Attenuator Control Commands: Set Attenuator, Set Attenuator with Response, Read Attenuator, Fade Attenuator, Store, Recall System Commands: Identification, Pause -RS-232 Only: Change Baud -Ethernet Only: Disconnect, Close, Message, Clear								

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SPECIFICATION SHEET

JFW MODEL 50BA-001-95

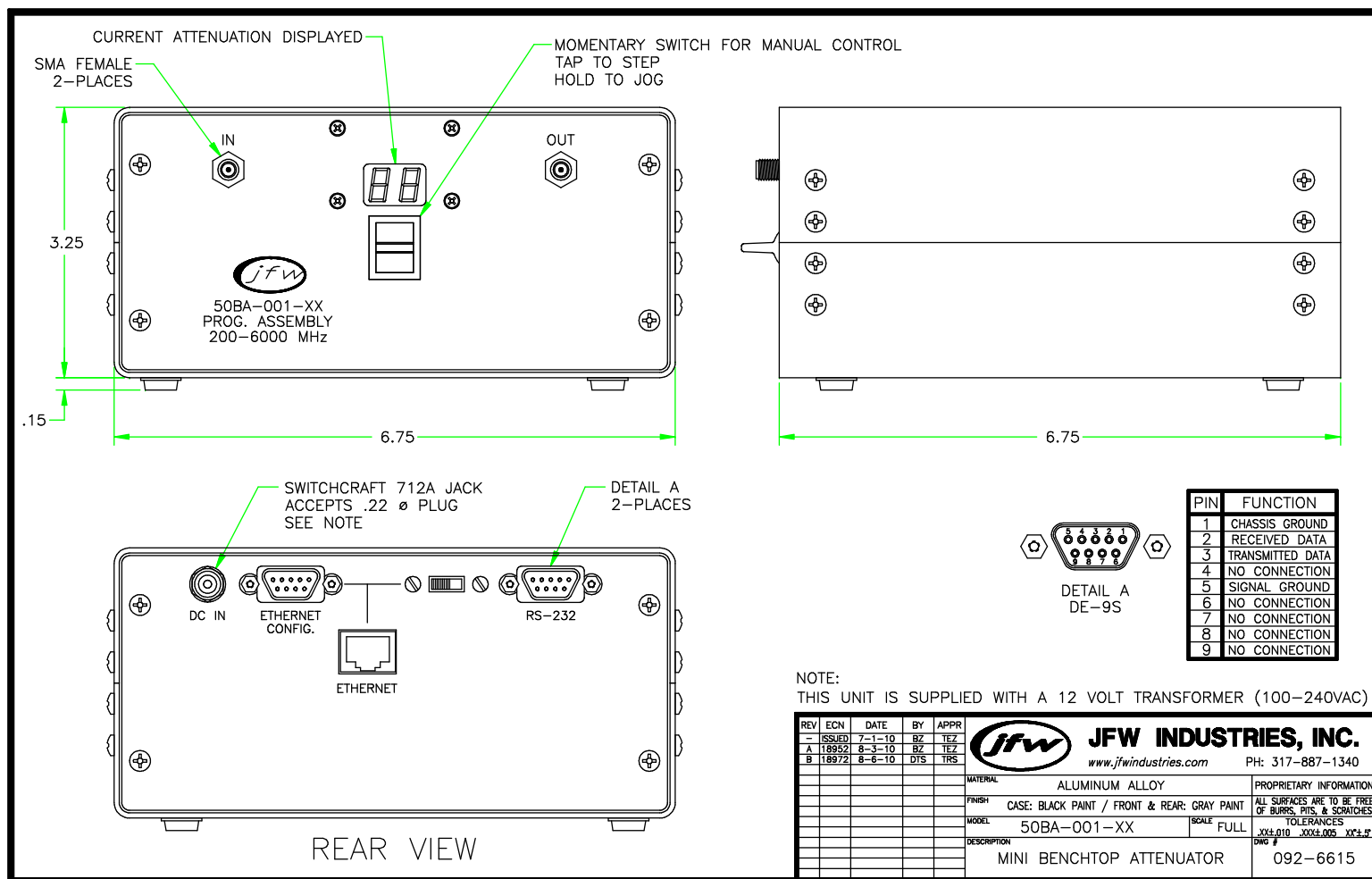
BENCHTOP PROGRAMMABLE ATTENUATOR ASSEMBLY

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RF Connector	SMA female
Operating Temperature Range	0°C to +50°C
Physical Size	See outline drawing 092-6615



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	07/13/2010		CLK 07/13/2010				
18975	08/06/2010	A	CLK 08/06/2010				



PIN	FUNCTION
1	CHASSIS GROUND
2	RECEIVED DATA
3	TRANSMITTED DATA
4	NO CONNECTION
5	SIGNAL GROUND
6	NO CONNECTION
7	NO CONNECTION
8	NO CONNECTION
9	NO CONNECTION

REV	ECN	DATE	BY	APPR
-	ISSUED	7-1-10	BZ	TEZ
A	18952	8-3-10	BZ	TEZ
B	18972	8-6-10	DTS	TRG

MATERIAL	ALUMINUM ALLOY	PROPRIETARY INFORMATION
FINISH	CASE: BLACK PAINT / FRONT & REAR: GRAY PAINT	ALL SURFACES ARE TO BE FREE OF BURRS, PITS, & SCRATCHES
MODEL	50BA-001-XX	TOLERANCES
DESCRIPTION	MINI BENCHTOP ATTENUATOR	XX±.010 .XXX±.005 XX±.01
		DWG # 092-6615

SPECIFICATION SHEET**JFW MODEL 50BA-002-63****BENCHTOP PROGRAMMABLE ATTENUATOR ASSEMBLY**

JFW Industries, Inc.
Phone: 317-887-1340
sales@jfwindustries.com
www.jfwindustries.com

Frequency Range	200-6000 MHz
Configuration	Two individually controlled solid-state programmable attenuators in a mini benchtop enclosure
Impedance	50 Ohms nominal
Attenuation Range	0-63 dB in 1 dB steps
VSWR	1.8:1 maximum 200-800 MHz 1.6:1 maximum 800-6000 MHz
Attenuation Accuracy (guaranteed monotonic)	± 0.50 dB 1-3 dB ± 0.75 dB 4-7 dB ± 1.00 dB 8-11 dB ± 1.25 dB or 4% 12-63 dB (whichever is greater)
Insertion Loss	6.0 dB maximum 5.0 dB typical
RF Input Power	+20 dBm average +25 dBm (no damage)
Switching Speed	1 microsecond typical (after command is received and processed) (3 milliseconds typical processing time)
DC Supply	+12 Vdc (100-240 VAC AC/DC transformer included)
Manual Control	Two Momentary Lever Actuator Switches w/ 7-Segment LED Displays (tap to step, hold to jog)
Remote Control	RS-232 (9600, 19200, or 38400 Baud) Ethernet (TCP, 10/100, up to 4 users)

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SPECIFICATION SHEET**JFW MODEL 50BA-002-63****BENCHTOP PROGRAMMABLE ATTENUATOR ASSEMBLY**

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Phone: 317-887-1340
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Remote Commands

Attenuator Control Commands:

Set Attenuator, Set Attenuator with
Response, Read Attenuator, Set All
Attenuators, Read All Attenuators, Set
Multiple Attenuator, Fade Attenuator,
Variable Handover, Store, Recall

System Commands:

Identification, Pause
-RS-232 Only: Change Baud
-Ethernet Only: Disconnect, Close,
Message, Clear

RF Connector

SMA female

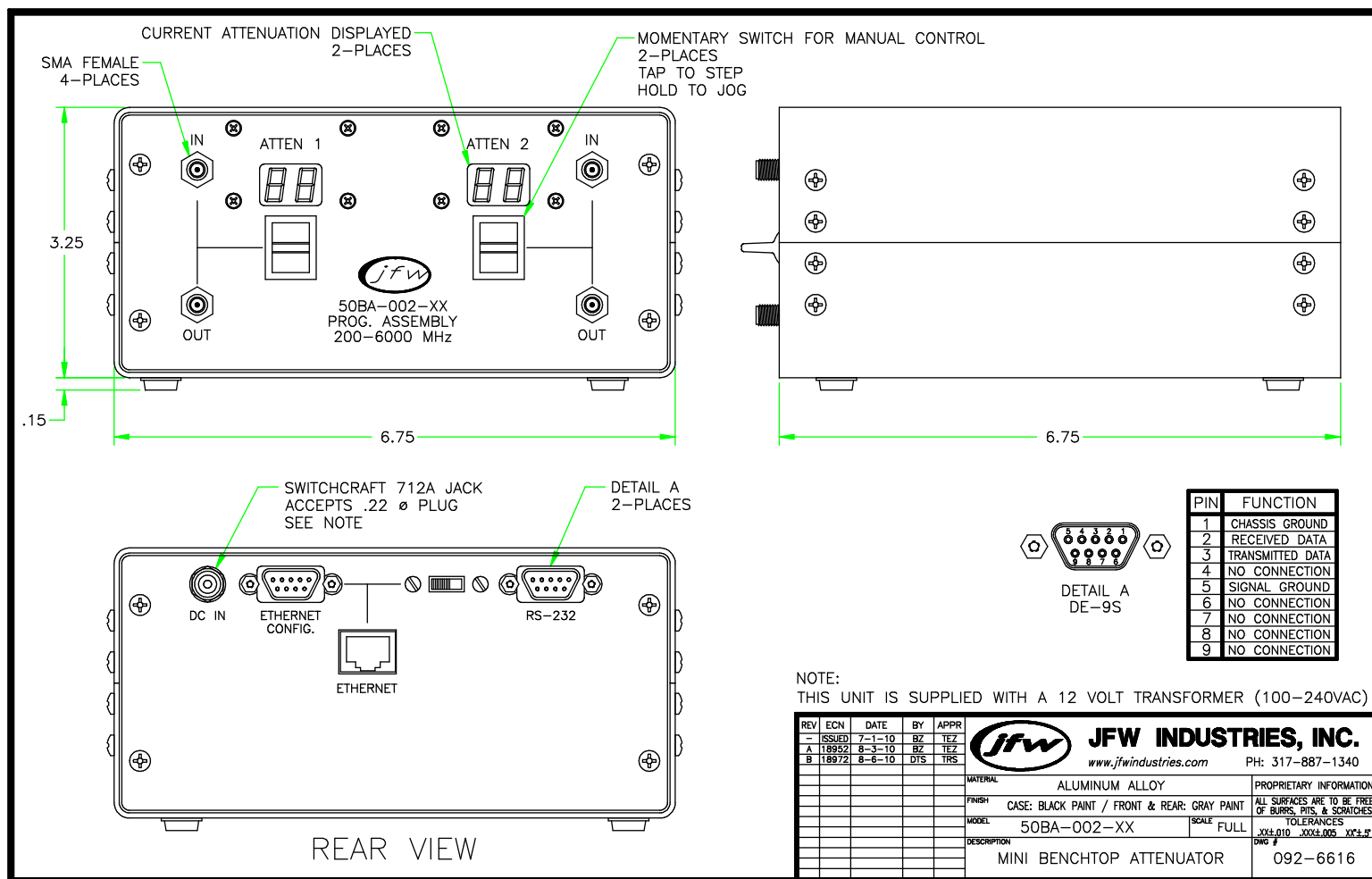
Operating Temperature Range

0°C to +50°C

Physical Size

See outline drawing 092-6616

ECR/ECN #	DATE	REV	APPR / DATE	ECR/ECN #	DATE	REV	APPR / DATE
	07/13/2010		CLK 07/13/2010				
18975	08/06/2010	A	CLK 08/06/2010				



REV	ECN	DATE	BY	APPR
-	ISSUED	7-1-10	BZ	TEZ
A	18952	8-3-10	BZ	TEZ
B	18972	8-6-10	DTS	TRG

 JFW INDUSTRIES, INC. www.jfwindustries.com		PH: 317-887-1340	
		MATERIAL: ALUMINUM ALLOY	
FINISH: CASE: BLACK PAINT / FRONT & REAR: GRAY PAINT		PROPRIETARY INFORMATION	
MODEL: 50BA-002-XX		SCALE: FULL	
DESCRIPTION: MINI BENCHTOP ATTENUATOR		TOLERANCES: XX±.010 .XXX±.005 XX±.01	
		DWG # 092-6616	

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www.jfwindustries.com

Frequency Range	200-6000 MHz								
Configuration	Two individually controlled solid-state programmable attenuators in a mini benchtop enclosure								
Impedance	50 Ohms nominal								
Attenuation Range	0-95 dB in 1 dB steps								
VSWR	2.0:1 maximum								
Attenuation Accuracy (guaranteed monotonic)	<table><tr><td>± 0.50 dB</td><td>1-3 dB</td></tr><tr><td>± 0.75 dB</td><td>4-7 dB</td></tr><tr><td>± 1.00 dB</td><td>8-11 dB</td></tr><tr><td>± 1.25 dB or 4%</td><td>12-95 dB</td></tr></table> (whichever is greater)	± 0.50 dB	1-3 dB	± 0.75 dB	4-7 dB	± 1.00 dB	8-11 dB	± 1.25 dB or 4%	12-95 dB
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Insertion Loss	8.0 dB typical								
RF Input Power	+20 dBm average +25 dBm (no damage)								
Switching Speed	1 microsecond typical (after command is received and processed) (3 milliseconds typical processing time)								
DC Supply	+12 Vdc (100-240 VAC AC/DC transformer included)								
Manual Control	Two Momentary Lever Actuator Switches w/ 7-Segment LED Displays (tap to step, hold to jog)								
Remote Control	RS-232 (9600, 19200, or 38400 Baud) Ethernet (TCP, 10/100, up to 4 users)								

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Remote Commands

Attenuator Control Commands:

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Response, Read Attenuator, Set All
Attenuators, Read All Attenuators, Set
Multiple Attenuator, Fade Attenuator,
Variable Handover, Store, Recall

System Commands:

Identification, Pause
-RS-232 Only: Change Baud
-Ethernet Only: Disconnect, Close,
Message, Clear

RF Connector

SMA female

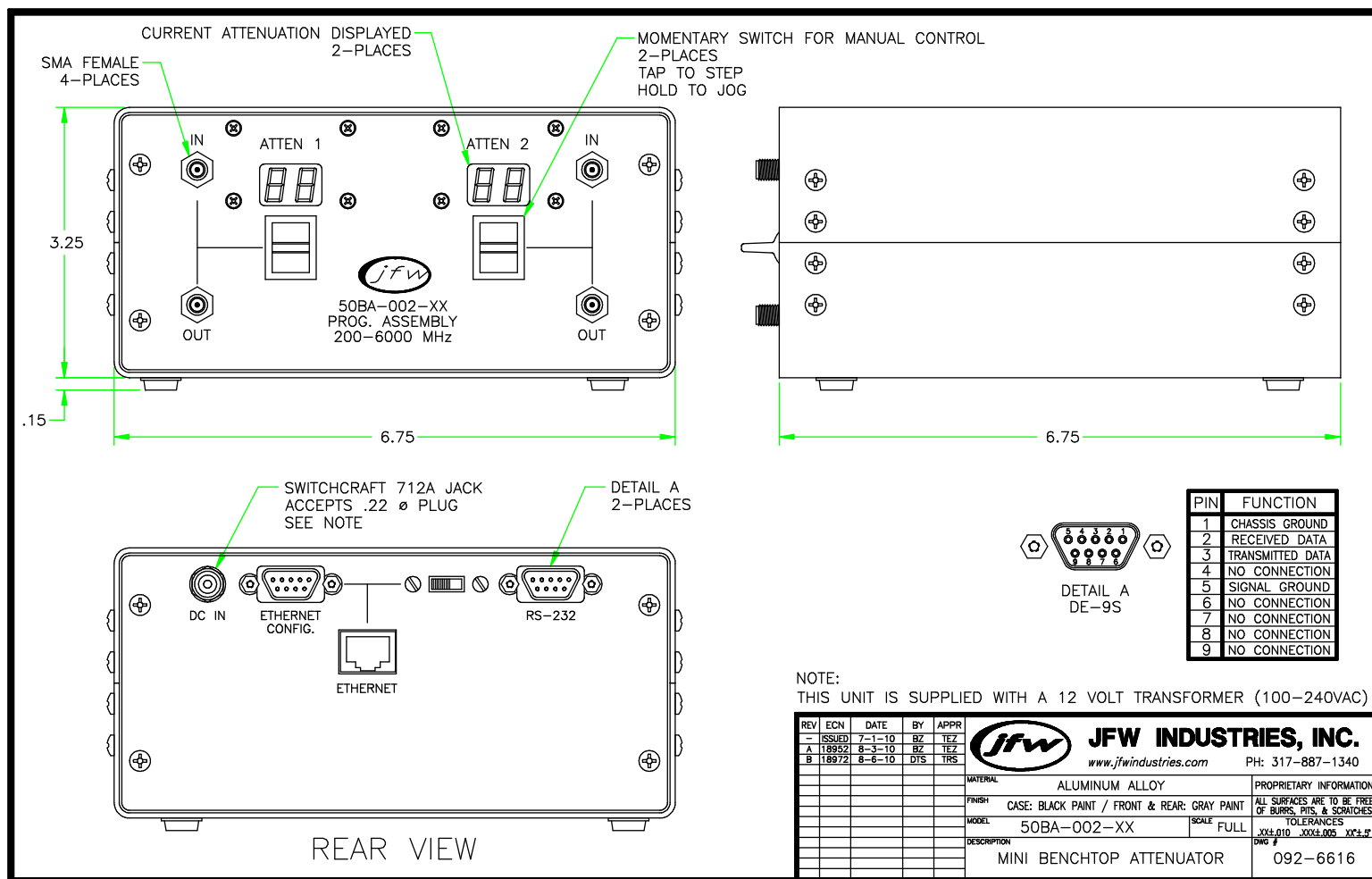
Operating Temperature Range

0°C to +50°C

Physical Size

See outline drawing 092-6616

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18975	08/06/2010	A	CLK 08/06/2010				



REV	ECN	DATE	BY	APPR
-	ISSUED	7-1-10	BZ	TEZ
A	18952	8-3-10	BZ	TEZ
B	18972	8-6-10	DTS	TRG

		JFW INDUSTRIES, INC.	
www.jfwindustries.com		PH: 317-887-1340	
MATERIAL: ALUMINUM ALLOY			
FINISH: CASE: BLACK PAINT / FRONT & REAR: GRAY PAINT		PROPRIETARY INFORMATION ALL SURFACES ARE TO BE FREE OF BURRS, PITS, & SCRATCHES TOLERANCES XXX.010 XXX.005 XXX.5	
MODEL: 50BA-002-XX			
DESCRIPTION: MINI BENCHTOP ATTENUATOR		SCALE: FULL	
		DWG # 092-6616	