

SA-MOD-1-9-B

Embedded Spectrum Analyzer Module



- Compact, Rugged Design
- Monitoring & Control (M&C) via Multiple Interfaces
- Extended Temperature Range
- Low SWaP (Size, Weight, and Power)
- Multiple Inputs Available
- L-Band and Extended Frequency Band Options

The SA-MOD-1-9-B is a spectrum analyzer designed on a completely new platform to meet today's system challenges. This robust product features many capabilities to provide rugged and reliable operation in embedded applications.

Avcom's newest analyzer technology provides excellent performance by employing high-performance DSP, and FPGAs. Integrators can now embed a compact full-function spectrum analyzer into systems operating in austere and rugged environments.

The spectrum analyzer can be connected via ethernet, or USB, and supports communication with a WEB-GUI, POSIX-C API, and Avcom's EVO GUI. This wide range of options makes the unit ideal for integrating with custom M&C systems or easy setups using existing Avcom applications.

For more information and support, please contact salesrfq@avcomofva.com.

SA-MOD-1-9-B

TECHNICAL SPECIFICATIONS

RF SPECIFICATIONS			
INPUT CONNECTORS:	SMA		
NOMINAL INPUT IMPEDANCE:	50 Ω (SMA)		
MAX DC INPUT VOLTAGE:	25 V		
INPUT FREQUENCY RANGE:	MODEL	MIN (MHz)	MAX (MHz)
	2290 (Default)	900	2200
	3040	400	3000
	6070	70	6000
MAX SPAN WIDTH:	1300 MHz		
MIN TUNING STEP SIZE:	1 kHz		
RESOLUTION BANDWIDTH:	1 kHz, 3 kHz, 10 kHz, 30 kHz, 100 kHz, 300 kHz, 1 MHz		
REFERENCE LEVELS:	-40 dBm, -30 dBm, -20 dBm, -10 dBm		
MAXIMUM INPUT POWER LEVEL:	-10 dBm		
RF SENSITIVITY (-40 REF LVL):	-100 dBm		
SPUR FREE DYNAMIC RANGE (3kHz RBW):	60 dB		
NOISE FLOOR (-40 REF LVL, 3kHz RBW):	-100 dBm, -134 dB/Hz		
NOISE FLOOR (-10 REF LVL, 3kHz RBW):	-70 dBm, -104 dB/Hz		
ISOLATION BETWEEN INPUTS:	>40 dB typical		
AMPLITUDE ACCURACY:	+/- 1 dB typical		
FREQUENCY ACCURACY:	+/- 1 kHz typical		
PHASE NOISE (2 GHz):	OFFSET FREQUENCY	PHASE NOISE (dBc/Hz)	
	10 kHz	-100	
	100 kHz	-100	
	1 MHz	-109	

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TECHNICAL SPECIFICATIONS – CONTINUED

COMMUNICATION INTERFACE	
ETHERNET:	10/100, Magnetics on-board, DHCP or Static, 4-pin Molex
USB:	115200 8n1, 3-pin Molex

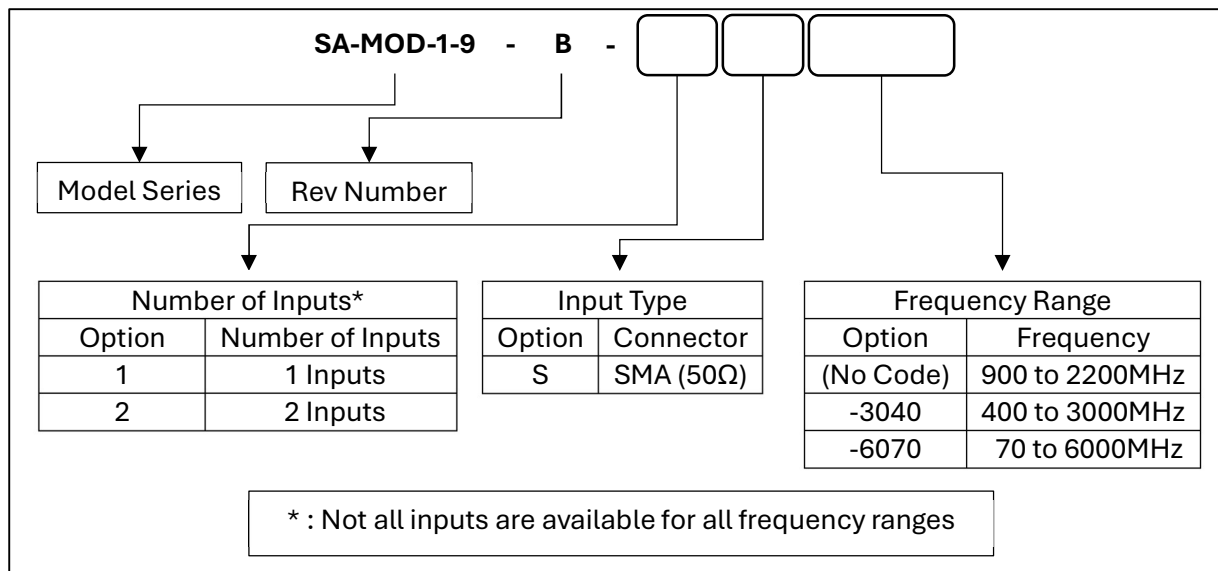
M & C			
	EVO GUI	POSIX-C API SBS2API	WEB-GUI
ETHERNET:	Yes	Yes	Yes
USB:	Yes	Yes	N/A

POWER	
CONNECTOR:	2-pin Molex
POWER SUPPLY:	8 - 33 VDC, < 3W with reverse polarity, surge, and spike protection

PHYSICAL	
DIMENSIONS:	3 in. x 3.5 in. x 1.062 in.
WEIGHT:	7.1 oz; 200g

ENVIRONMENTAL	
OPERATING TEMPERATURE:	-40°C to 70°C
STORAGE TEMPERATURE:	-40°C to 85°C
HUMIDITY:	0 to 95%, non-condensing
MAX OPERATING ALTITUDE:	40,000 ft; 12,000 m

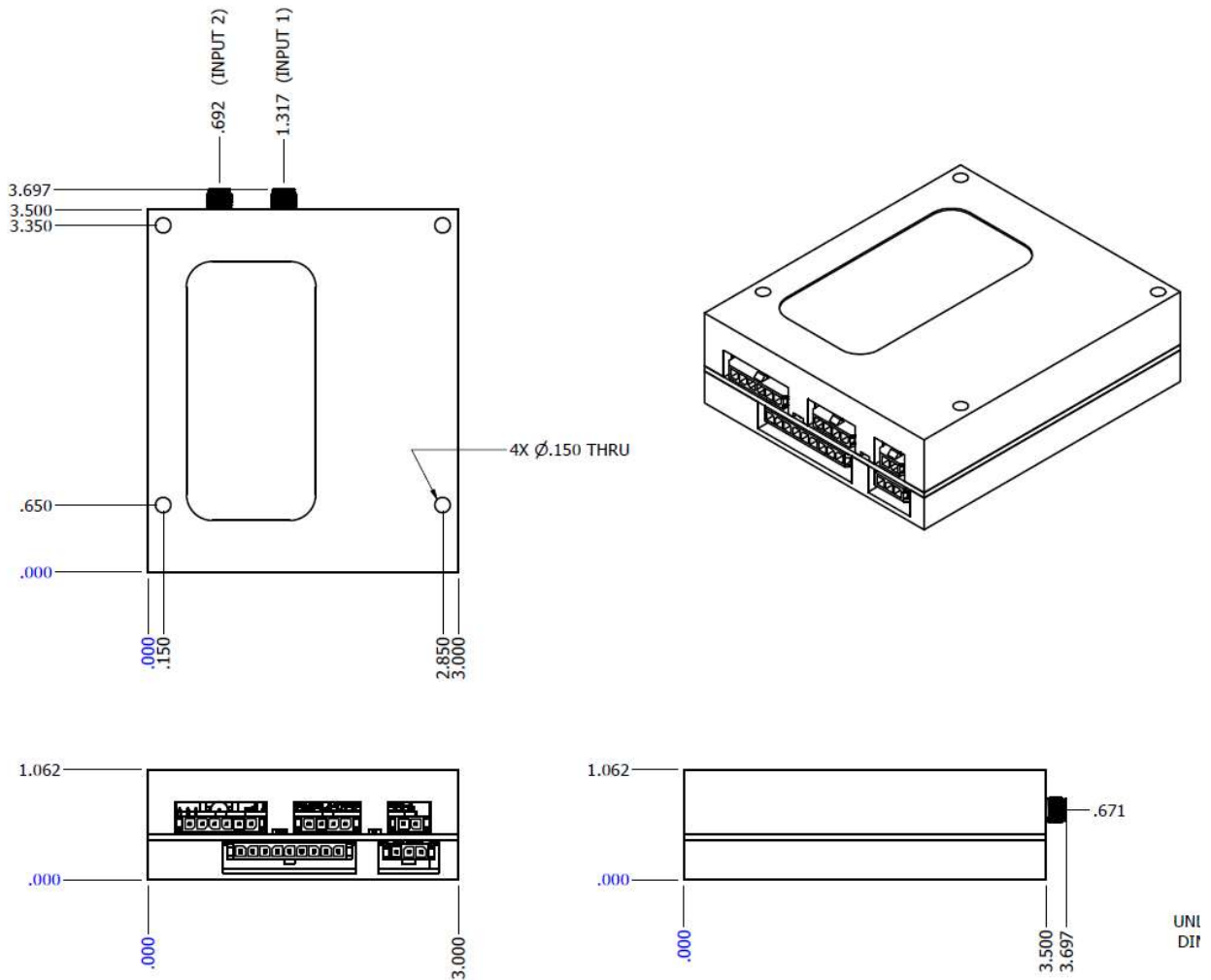
SA-MOD-1-9-B MODEL IDENTIFICATION



FULL MODEL NAME LIST

Connector	Number of Inputs	Frequency		
		900 to 2200MHz	400 to 3000MHz	70 to 6000MHz
SMA (50Ω)	1	SA-MOD-1-9-B-1S	SA-MOD-1-9-B-1S-3040	SA-MOD-1-9-B-1S-6070
	2	SA-MOD-1-9-B-2S	SA-MOD-1-9-B-2S-3040	N/A

SA-MOD-1-9-B
PHYSICAL DIMENSIONS



NOTES:

1. REFER TO CAD MODEL FOR UNLISTED DIMENSIONS

UNLESS OTHERWISE STATED:
DIMENSIONS ARE IN INCHES

TOLERANCES:

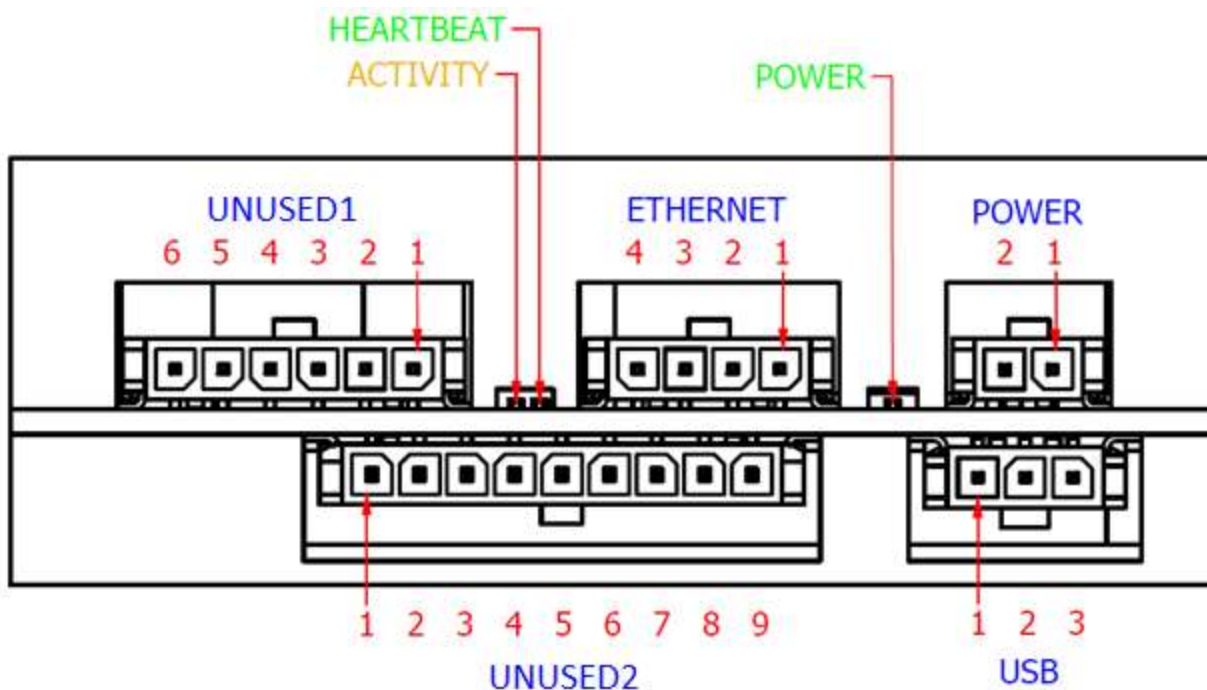
.XX = ± 0.01

.XXX = ± 0.005

.XXXX = ± 0.0002

ANGLES = $\pm 0.5^\circ$

SA-MOD-1-9-B
PIN POSITIONS AND DESCRIPTIONS



UNUSED1	
PIN	FUNCTION
1	UNUSED (DO NOT CONNECT)
2	
3	
4	
5	
6	

ETHERNET	
PIN	FUNCTION
1	Ethernet TD1_N
2	Ethernet TD1_P
3	Ethernet TD0_N
4	Ethernet TD0_P

POWER	
PIN	FUNCTION
1	POWER IN
2	GND

UNUSED2	
PIN	FUNCTION
1	UNUSED (DO NOT CONNECT)
2	
3	
4	
5	
6	
7	
8	
9	

USB	
PIN	FUNCTION
1	GND
2	USB DATA_N
3	USB DATA_P

SA-MOD-1-9-B PIN INTERFACE

MATING CONNECTORS		
ETHERNET	4-pin	Molex: 0436450400
POWER	2-pin	Molex: 0436450200
USB	3-pin	Molex: 0436450300
UNUSED1	6-pin	N/A
UNUSED2	9-pin	N/A
CRIMP PIN		Molex: 0430300002
CRIMPING TOOL		Molex: 0638190000
WIRE		20-24 AWG

Connector Name	Pin Number	Function Name	I/O Type	Recommended Interface Circuit/Voltage	Limiting Voltages and Protection Notes
ETHERNET	1	Ethernet TD1_N	Communications I/O	Ethernet 10/100	Galvanically Isolated. Magnetics on unit.
	2	Ethernet TD1_P			
	3	Ethernet TD0_N			
	4	Ethernet TD0_P			
POWER	1	POWER IN	Power Supply Input	8.0 V to 33.0 V DC Power	DC Reverse Polarity Protected to -100 VDC. Surge Protected to +100 V.
	2	GND	Power Supply Ground	0V	
USB	1	GND	Ground Reference	USB 2.0 (0 V to 5 V)	0 V Min. 5 V Max. Limited by USB ESD steering diode array and power rails for USB IC.
	2	USB DATA_N	Communications I/O		
	3	USB DATA_P	Communications I/O		

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PIN INTERFACE - CONTINUED

Connector Name	Pin Number	Function Name	I/O Type	Recommended Interface Circuit/Voltage	Limiting Voltages and Protection Notes
UNUSED1	1	UNUSED (DO NOT CONNECT)			
	2				
	3				
	4				
	5				
	6				
UNUSED2	1	UNUSED (DO NOT CONNECT)			
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				

REVISION NOTES

VERSION	RELEASE DATE	CHANGES
1.2	2/14/2025	Initial Release
1.3	5/28/2025	- Add Additional RF Specifications - Add 6070 model option - Update Model Identification and Full Model Name List - Update Summary - Add Revision Notes