

MODEL AR-5020
AR-5000 SERIES
125 WATTS CW/PEP
118 to 144 MHz
225 to 400 MHz

AR Modular RF's **AR-5000 Series** is the next generation of wideband, Class A/AB linear amplifier designed for use with modern digital modulations. Engineered with a flexible system architecture, **AR-5000 Series** amplifiers are tailored to meet specific user needs over the frequency range of 80 kHz to 1000 MHz and power range of up to 1000 Watts CW and 4000 Watts peak.

AR-5000 Family Available Features:

- Lightweight 19", 2U Chassis
- Rack Mount Enclosure
- AC Powered, Single Phase
- Ethernet Remote Control
- Automatic Level Control (ALC)
- Maximum Level Control (MLC)
- Gain Control (GC)
- Input Overdrive Protection
- Output VSWR Protection
- Over Temperature Protection
- Unconditionally Stable
- Forward & Reflected Power Monitoring
- Blanking



The following specifications apply to the standard **Model AR-5020** amplifier – a standard amplifier in the **AR-5000 Series**.

For information on all **AR-5020** model configurations available, see table, "ORDERABLE MODEL CONFIGURATIONS" on page 3.



PERFORMANCE SPECIFICATIONS – MODEL AR-5020 AMPLIFIER

ELECTRICAL

SPECIFICATION	Units	Minimum	Typical	Maximum	Notes
Amplifier Class	-	AB			Optimized for constant-envelope modulation
Frequency Response (Dual band, manually selectable)	MHz	118		144	Amplifier operating range: Specifications herein apply across each of the noted bands; Performance outside of these bands not guaranteed; See ORDERABLE MODEL CONFIGURATIONS for more details on operation
		225		400	
Rated Output Power	W		125	150 [†]	Rated at CW/PEP; Single Carrier
	dBm		51	51.8	
Maximum Level Control (MLC)	W		150		Factory set maximum output protection level
Power Gain	dB	15		18	
Operating Input Power	W	4	6	10	Guaranteed performance range
	dBm	36	38	40	
Maximum Input Power	W		20		Above this level amplifier input may be damaged
	dBm		43		
ALC Range (ALC)	dB		3	5	Automatic Level Control (ALC) – ALC sets the output power of an amplifier independent of input power (within limits) and is custom adjustable for specific applications.
ALC Response Time	Msec			2	Measured to 110% of ALC limited power
Output Power Flatness	dB			±1	
Blanking	µsec		20		RF on/off, rear connector control (BNC) Power transistor shut off completely during blanking
Broadband Noise	dBm/Hz		125		
Input / Output Impedance	Ohm		50		By design
VSWR Tolerance	-		2:1	Infinite	Amplifier will deliver rated 125-Watt power into a 2:1 mismatch; above 2:1, amplifier will not shutdown as a result of output impedance mismatch, but power delivered to the load may be reduced
Spurious Outputs & Harmonics (4 th and above)	dBc		-50		@ Nominal input, Rated output, < 5000 kHz from carrier, 10 Hz RBW, by design
				-80	@ Nominal input, Rated output, > 5000 kHz from carrier, 10 Hz RBW
Harmonic Performance (2 nd , 3 rd)	dBc			-70	
OIP3	dBm		61		2 tones, 100 kHz spacing, 20 Watts per tone
Input Power (AC)	VAC	110	-	240	
	Hz	50	-	60	
Power Consumption	W			520	During active transmission
				120	When amplifier is blanked
				200	Idle – Amplifier at rest for an extended period

[†] The amplifier is capable of producing transient spikes greater than 300-Watt peak-power. Extreme caution should be exercised when driven with high PEP signals.



MECHANICAL & ENVIRONMENTAL

SPECIFICATION	Units	Details	Notes
Size	Inches	19.0" W x 20.8" L x 3.5" H	Standard 19" Rack Mount, 2U
Weight	kg	15	Maximum weight
Operating Temperature, Ambient	°C	+5 to +40	
Relative Humidity	%	95	Maximum, non-condensing
Cooling	-	Fans	Forced Air (Integrated Fans, Automatically Controlled)

PERFORMANCE STANDARDS

AR-5000 Series amplifiers can be designed to meet many military standards including, but not limited to:

- MIL-STD-810x
- MIL-STD-461x
- MIL-STD-1399x

Please speak with your AR Modular RF Sales Representative if documented compliance to these or any other standards is required.

INTERFACE & CONTROL

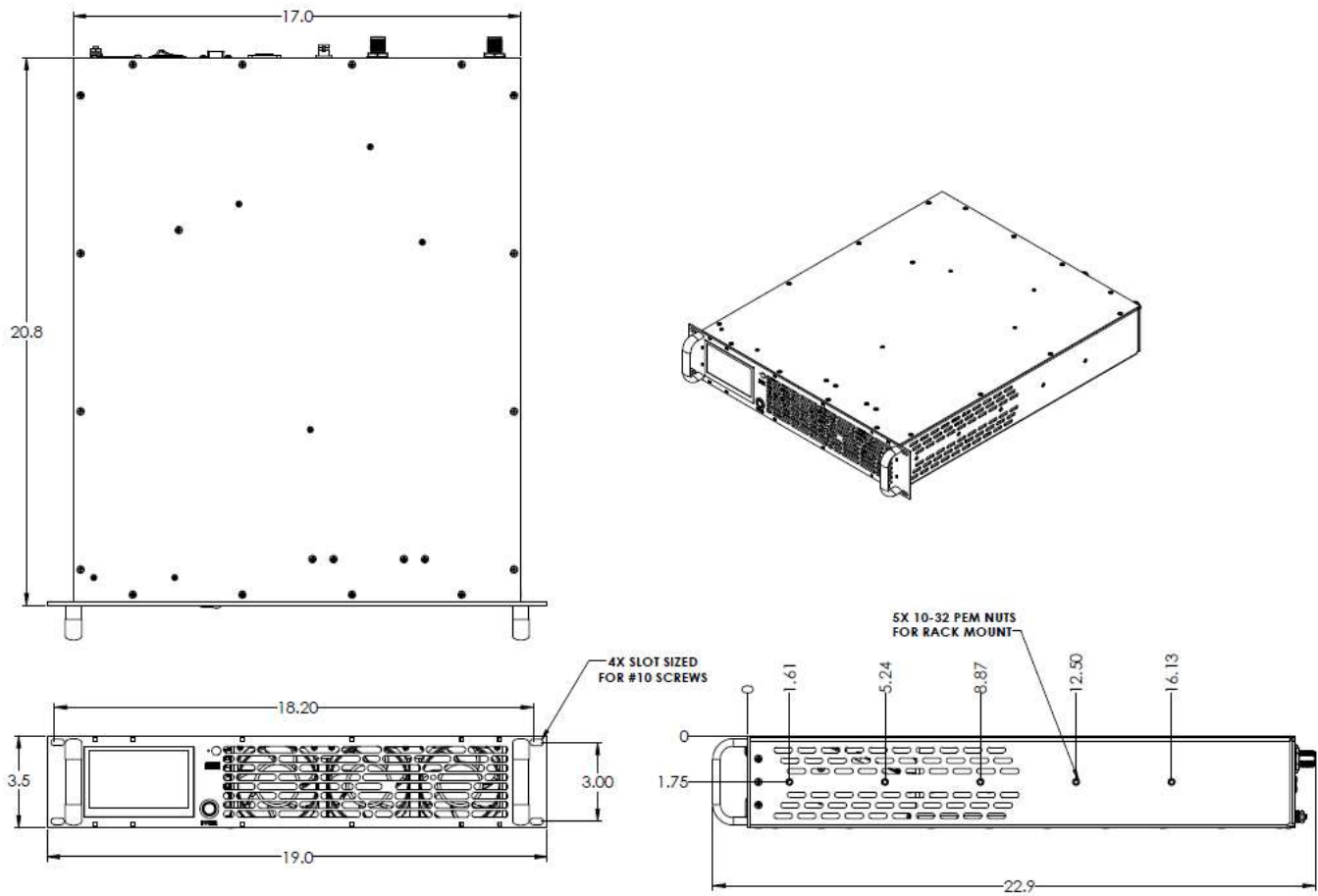
The AR-5020 has interface and control elements on both the front and rear panels. The amplifier is fully operational using the front-panel interface and can be optionally controlled via a rear-panel Ethernet connection.

Element	Panel	Details	Notes
Ethernet	Rear	RJ45	Ethernet control for remote operation. All amplifier control and monitoring can be performed remotely via Ethernet
Remote Control / Monitor	Rear	DB9	Not implemented in this model. Use Ethernet for remote control.
RF Input	Rear	SMA, Female	
RF Output	Rear	N-Type, Female	
Remote Interlock / Blanking	Rear	BNC, Female	Used as a discrete, fast on/off switch
AC Power Connector	Rear	IEC Appliance Inlet C20	
AC Power Cord	Ext	Included	AC cord supplied with end country plug type
AC Power Control	Rear	Toggle switch	Hard power control, AC switch/breaker
	Front	Push button	Soft power control
Status LED & Push Button	Front	Various indications	AC present, Amplifier ON/OFF, general fault, etc.
Display Screen	Front	Menu based local interface for amplifier operation	Access to forward/reflected power performance, status monitoring, amplifier remote configuration, etc.

ORDERABLE MODEL CONFIGURATIONS

MODEL NAME	SPECIFICATIONS
AR-5020	Standard Configuration (C1) – Specifications as detailed in this document Important Notes: 1. Band selection is USER CONTROLLED via local or remote interface

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Outline Drawing

Note: Drawing is representative of the standard AR-5020 model and may not be applicable to all model variations.