

# MODEL KMW2040-M20 100 WATTS CW 225 to 400 MHz

AR Modular RF's **KMW2040-M20** is the next generation of legacy amplifier **KMW2040-M17**. The amplifier is built, tested and sold as a system including an off the shelf filter, external RF cable and cable harness for unit interface and control.

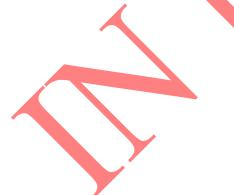
#### Key Features:

- Amplifier built, tested and sold as an integrated system with external filter
- Precision Gain
- Maximum Level Control
- Overdrive Protection
- Mismatch/VSWR Protection



The following specifications apply to amplifier **Model KMW2040-M20** – a custom **AR Modular RF** amplifier integrated with an external filter, combined and sold as a single system. Model **KMW2040-M20** is an RF power amplifier module for OEM applications or integration into a user system. The module comprises a printed wiring assembly housed in a machined aluminum enclosure with external connections for power and control. Cooling and environmental protections are the responsibility of the end user.

For information on all **KMW2040-M20** model configurations available, see table, "ORDERABLE MODEL CONFIGURATIONS" below.





## PERFORMANCE SPECIFICATIONS - MODEL KMW2040-M20 AMPLIFIER

#### ELECTRICAL

The electrical specifications detailed below apply at 100W output power when the amplifier is operating with an installed external filter and RF cable.

SPECIFICATION		Units	Minimum	Typical	Maximum	Notes
Amplifier Class		-	AB			
Operational Ranges	Frequency	MHz	225	-	400	Amplifier operating range; Specifications herein apply across noted range at 100 W output power; Performance outside these limits not guaranteed
	Output	W	-	100	160	Rated at CW; Single Carrier
	Power	dBm	-	50	52	Rated at CW; Single Carrier
	Input	mW	-	0.63	2	See MLC below
	Power	dBm	-	-2	3	
Maximum Level Control (MLC) Operation		-	-	-	-	<ul> <li>MLC circuitry limits PEP as follows:</li> <li>51 dBm ± 1.0 dB over 225 to 290 MHz</li> <li>51 dBm ± 0.5 dB over 290 to 320 MHz</li> <li>51 dBm ± 1.0 dB over 320 to 400 MHz</li> </ul>
P1dB Compre	P1dB Compression		100	-	-	
1 Idb compre	331011	dBm	50	-	-	
		dB	50	52	54	225 MHz to 290 MHz
Power Gain @	9 100 W		51.5	52	52.5	290 MHz to 320 MHz
			50	52	54	320 MHz to <mark>40</mark> 0 MHz
	Power Gain @ 10 W		50	52	55	225 MHz to 290 MHz
Power Gain @			51.5	52	53.5	290 MHz to 320 MHz
			50	52	55	320 MHz to 400 MHz
Blanking		μs		-	30	RF ON/OFF, (see Interface & Control) Power transistor shut off completely during blanking
ON/OFF Ratio		dBc	80	TBD	-	Ratio between amplified (amplifier ON) and non-amplified (blanked, amplifier OFF) signals, as controlled by Pin 3, with constant RF input drive
Input / Output Impedance		Ohm		50	-	
VSWR Tolerance		-	-		∞	Output power is automatically reduced above 3:1 mismatch
Spurious Outputs		dBc	-	TBD	-80	@ 100 W output, 0.2 to 10 MHz from carrier, 10 Hz RBW
Harmonic Performance (2 <sup>nd</sup> , 3 <sup>rd</sup> )		dBc	-	TBD	-70	
Harmonic Performance (4 <sup>th</sup> )		dBc	-	TBD	-80	
IMD Performance		dBc	-	-26	-20	Two tones, each @ 25 W, with 0.2 MHz spacing
Broadband Noise		dBm	-	TBD	-120	dBm/Hz
		V	27	28	29	
Input Power (DC)		А		9.5	11	Control Pin to ON
		А		0.35		Control Pin to OFF



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#### MECHANICAL & ENVIRONMENTAL

The mechanical and environmental specifications detailed below apply only to the AR Modular RF manufactured amplifier portion of the **KMW2040-M20**.

SPECIFICATION	Units	Details	Notes
Size	Inches	See outline drawing	
3120		below	
Weight	kg	TBD	
Operating Temperature, Ambient	°C	See Notes	Customer must maintain unit case temperature below 80°C to avoid shutdown; Amplifier specifications guaranteed up to case temperature of 50°C
Relative Humidity	%	95%	
Cooling	-	Customer Controlled	Customer responsible for unit cooling
Interface & Control Connector	-	Wired harness w/ MOLEX connector	12" long cable harness assembly terminated with Molex P/N 03-09- 1094

#### INTERFACE & CONTROL

The KMW2040-M20 has external interface and control pins as defined in the table below.

Element	Pin	Details	Notes
			VSWR pin status:
VSWR	1	Indicator	<ul> <li>≥ 2.5 V, Normal amplifier operation</li> </ul>
			<ul> <li>         ≤ 0.7 V, Amplifier output power limited     </li> </ul>
			Over drive pin status:
OVER DRIVE	2	Indicator	► ≥ 2.5 V when MLC circuitry NOT active
			● ≤ 0.7 V when MLC circuitry active
			Function:
ON / OFF	3	Control	<ul> <li>≤ 0.7 V, Amplifier commanded OFF</li> </ul>
			• $\geq$ 5 V or no connection = ON
			Indicates amplifier has shut down due to enclosure temperature in
	excess of 80°C		
OVER TEMPERATURE	4	Indicator	Normal operation restored after enclosure cools to below 75°C
OVER TEIVIPERATORE	4	indicator	Status:
			● ≤ 0.7 V, Amplifier OFF
			• $\geq$ 2.5 V, Amplifier ON
FAN	5	Indicator	Pin will go to ground (8A capability) when enclosure reaches 50°C
DC Power (+)	6&7	Input	+28V nominal
DC Power (-)	DC Power (-) 8 & 9 Input		Ground

# ORDERABLE MODEL CONFIGURATIONS

MODEL NAME	SPECIFICATIONS				
KMW2040-M20	Standard Configuration (C1) – Specifications as detailed in this document. Unit is shipped, pre-assembled,				
KIVI VV 2040-IVI 20	with integrated RF cable, low pass filter and harness for interface and control.				



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### BLOCK DIAGRAM & OUTLINE DRAWING

Note – Drawing is representative of the standard **KMW2040-M20** model and may not be applicable to all model variations.

