

Amplifiers

Model 100T40G50

Features:

- 100 W CW, 40 – 50 GHz
- 100% mismatch tolerant
- Built-in fault monitoring and protection
- Remote Control: GPIB
- Modular design for easy maintenance and service

Applications:

- Industrial and University Research and Development
- Test and Measurement
- EMC Test applications

To view our full amplifier portfolio visit:
www.arworld.us/amplifiers

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ISO 9001:2015 Certified
ISO 17025 :2017 Certified

The Model 100T40G50 is a self-contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for applications where instantaneous bandwidth and high gain are required. A reliable TWT subsystem provides a conservative 100 watts minimum, measured at the amplifier output flange. Stated power specifications are at the fundamental frequency.



The amplifier's front panel digital display shows forward and reflected output plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess reflected power warning and remote. Standard features include a built-in IEEE-488 (GPIB) interface, 0 dBm input, VSWR protection, gain control, RF output sample ports, plus monitoring of TWT helix current, cathode voltage, collector voltage, heater current, heater voltage, baseplate temperature and cabinet temperature.

Modular design of the power supply and RF components allow for easy access and repair. Use of a switching mode power supply results in significant weight reduction. The rated power is developed by efficiently power combining the outputs from two microwave tubes that are factory-matched in gain and phase.

Housed in a stylish contemporary cabinet, the unit is designed for benchtop use but can be removed from the cabinet for rack mounting. The Model 100T40G50 provides readily available RF power for a variety of applications in Test and Measurement, (including EMC RF susceptibility testing), Industrial and University Research and Development, and Service applications.

See **Ordering Options** for optional features.

The export classification for this equipment is EAR99. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

Model 100T40G50

- 100 W
- 40 – 50 GHz

Electrical Specifications					
Parameter	**Symbol**	**Minimum**	**Typical**	**Maximum**	**Unit**
Rated Power Output (40 - 50 GHz)	PSAT	100			W
Input for Rated Output	Pin			1	mW
				0	dBm
Operating Frequency	BW	40		50	GHz
Gain (Small Signal)		50			dB
Gain Reduction Adjustment (when below compression)		35			dB
Flatness (maximum @ rated power)	ΔG			±8	dB
Input Impedance	Z in			50	Ohm
				2.0:1	VSWR
Output Impedance	Z out		50		Ohm
			2.5:1		VSWR
Noise Figure	NF		-75	-70	dBm/Hz
Harmonic Distortion	H2, H3		–22		dBc
Spurious			-40		dBc
Power Consumption (maximum)	PD			1.5	KVA

Mechanical Specifications		
Parameters	**Typical**	**Unit**
Dimensions (With Cabinet) (W x H x D)	50.3 x 43 x 76	cm
	19.8 x 17 x 30	in
Dimensions (No Cabinet) – 9U for 19" Rack	49 x 40 x 76	cm
	19 x 15.75 x 30	in
Weight (With Cabinet)	82	kg
	180	lb
Weight (No Cabinet)	68	kg
	150	lb
Weight (No Cabinet – With Slides and Handles)	70	kg
	157	lb
Cooling (air entry and exit in rear)	Forced air (self-contained fans)	

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RF Connector Interfaces	
Function	**Type**
Input	2.4mm, female, front
Output	WR-22 waveguide, rear, all tapped
RF Output Sample Port	2.4 mm, female, rear

RF Communication Interfaces	
Function	**Type**
IEEE-488 (standard)	Female, rear
Interlock	15-pin subminiature D, female

Ordering Options

E **Package Alternatives.** May select an alternative from the following **(E1C or (E1C and E2S) and/or E3H):**

E1C **Cabinet**: Without outer enclosure (for rack mounting), size 49 x 40 (9U) x 76 cm, 19 x 15.75 (9U) x 30 in. Subtract approximately 14 kg, 30 lbs, for removal of outer enclosure.

E2S **Slides**: slides installed, add approximately 5 lbs, 2 kg.

E3H **Handles**: Front handles installed.

Contact your AR RF/Microwave Instrumentation Sales Associate for specific model configuration pricing.

Model Number	Features
	E
100T40G50	Base model
M1	E1C
M2	E3H
M3	E1C & E3H
M4	E1C & E2S
M5	E1C & E2S & E3H

Model number example: Model 100T40G50M2 would have option E3H front handles installed.

Recommended Operating Conditions

Parameter	Minimum	Typical	Maximum	Unit
RF Drive Level - Peak		0	3	dBm
RF Load		1:1	2:1	VSWR
Ambient Temperature	0		+50	°C
AC Power	190		260	VAC
AC Power			1.5	kVA
AC Power	50		60	Hz

Absolute Maximum Rating

Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their normal value. Exceeding any of the limits listed here may result in permanent damage to the device.

Parameter	Minimum	Typical	Maximum	Unit
RF Drive			+13	dBm
RF Load Reflected Will operate without damage or oscillation when connected to any load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.	Warning at 5	Foldback at 7.9	Shutdown at 10	W
Storage Temperature	-40		+70	°C
Altitude			10,000 (derate 2°C/1000 ft above 3000 ft)	ft
Shock/Vibration	Normal Truck Transport			

TYPICAL OUTPUT POWER (Psat @ 0 dBm input)

