



**SPECIFICATION FOR A 1.9kW PULSED 2.0 – 8.0GHz
TRAVELLING WAVE TUBE AMPLIFIER
PTC7353**

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1.0 INTRODUCTION

This specification describes a Travelling Wave Tube (TWT) based pulsed RF amplifier model PTC7353. Features include digital front panel, forward power monitoring, reverse power protection, power factor correction, 100 to 240 VAC operation without any adjustment and IEEE 488 remote control and monitoring. Cooling is by forced air with internal fan.

1.1 Front Panel Indicators

Standby	:	ON when TWT has finished warming up, 3 minutes after application of prime power
Operate	:	ON when unit switched to OPERATE
Elapsed Time	:	Mechanical indicators for heater and high voltage
LCD Display	:	Displays unit status and configuration

1.2 Front Panel Controls

Line On	:	Applies power to fan and PSU
Operate	:	Applies TWT high voltage and enables RF output
Standby	:	Returns unit to standby mode
Menu Controls	:	Up, Down, Enter, Back

Remote Operation

Information Command	Status
Information Replies	Filament Time Delay Standby Operate Tripped, the cause being one of the following:- Unit Hot High Reflected Power Helix Over-current Cathode Over-current Helix Arc Over Duty Line Volts Low Logic Volts Interlock Error Watchdog Activated
State Changing Commands	Remote Local Operate Standby / Reset

2.0 ELECTRICAL INTERFACE SPECIFICATION

Connector 1

Connector Function : Mains input Power
Type : MS3102-20-4P
Pin A-phase, B-neutral, C-not connected, D-earth
Location : Rear Panel

Connector 2

Connector Function : Pulse Modulator Input
Type : BNC Jack 50Ω
Location : Front Panel
Signal Type : 5V TTL, active high

Connector 3

Connector Function : RF Input
Type : N female 50Ω
Location : Front Panel

Connector 4

Connector Function : Amplifier RF Output
Type : N female 50Ω
Location : Front Panel

Connector 5

Connector Function : Forward Power Monitoring
Type : N female 50Ω
Location : Front Panel

Connector 6

Connector Function : Chassis Earth
Type : M6 x 20 stud
Location : Rear Panel

Connector 7

Connector Function : IEEE 488 Control and Monitoring
Type : Centronics style
Location : Rear Panel

2.1 Electrical Specification

Parameter	Min	Typ	Max	Unit
RF Input				
Frequency	2.0		8.0	GHz
Amplitude			0	dBm
Pulse Modulation Input				
Inhibit	0		0.7	V (into 50Ω)
Transmit	2.0		5.0	V (into 50Ω)
Pulse Width	0.2		50	µs
Pulse Repetition Freq.	0		20	kHz, <i>Note 1</i>
RF Outputs				
Forward Peak Power	1.9	2.1		kW
Peak Reflected Power			500	W peak
Duty Cycle	0		6	%
Forward Power Monitor		-50		dBc typical
Maximum Load VSWR			3:1	ratio, <i>Note 2</i>
Spurious RF Output		-50	-40	dBc
Harmonic Output		0	+4.5	dBc, <i>Note 3</i>
Pulse Rise/Fall Time		20	100	ns
Beam on Noise Power Density		-12		dBm/MHz
Pulse propagation delay		200	300	ns
Prime Power				
Voltage	100		240	VAC single phase
Frequency	47		63	Hz
Start-up Current			10	A at 230V
Operating Current			6.5	A at 230V
Power Consumption		1.1	1.5	kW

Note 1: The maximum PRF can be optionally increased up to 100kHz.

Note 2: Full band VSWR. Maximum load VSWR is specified for no damage.

Note 3: Measured at 2GHz. Harmonic separation increases with frequency to 0dBc @ 2.3GHz and -2.5dBc @ 2.6GHz typically.

2.2 Mechanical Specification

Width	:	19" (483mm) Front Panel width
Height	:	4U (178mm) Front Panel height
Depth	:	780mm including handles
Weight	:	29 kg typical
Cooling	:	Forced air cooling using internal fan. Air enters through the Side and Rear Panel and exhausts through the Rear Panel of the amplifier which must be allowed free access

2.3 Environmental Specification

Storage Temperature	:	-20 to +70°C
Ambient Operating Temp	:	0 to +40°C
Operating Humidity	:	5% to 85% RH, non-condensing
Operating Altitude	:	2,000m maximum
Non Operating Altitude	:	50,000ft maximum
Shocks and Vibration	:	Commercial
Acoustic Noise	:	70dBa typically
Operating Position	:	Any