SPECIFICATION FOR PTCM1008, 6.0 – 18.0GHZ, 280W CW MODULAR INSTRUMENTATION AMPLIFIER

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AMENDMENT RECORD

Issue Number	Date	Description
1	August 2016	Initial Issue
2	August 2017	CN5514
3	March 2018	CN5668
4	April 2020	CN6273

Associated/Reference documents

Reference should also be made to the following documents:

Document Number	Issue Number	Description

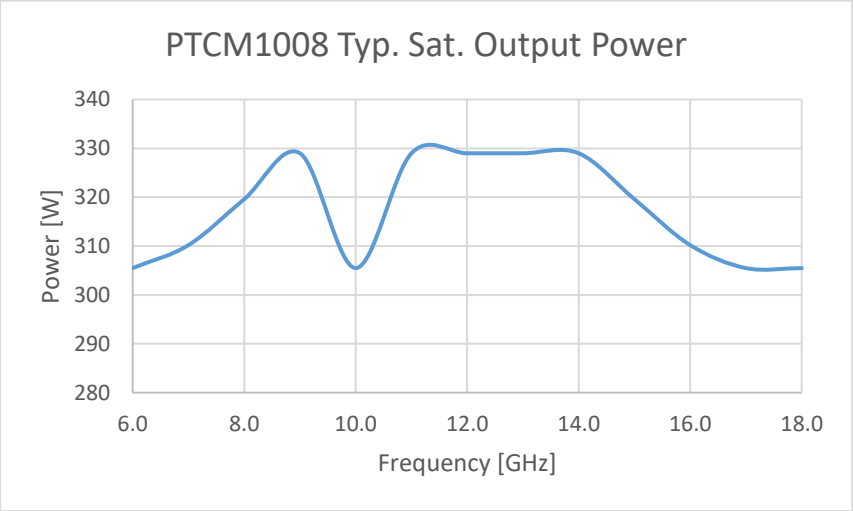
The PTCM1008 is a CW Travelling Wave Tube (TWT) Amplifier with high efficiency, instantaneous bandwidth and high gain when compared with solid state amplifiers.

For high availability user applications including EMC / Radiated Immunity, Communications, EW, Radar, RF Component Testing and scientific applications.

Continuing with TMDs heritage in ultra-reliable amplifiers, we have now improved the capability of our amplifiers through built in self-test, advanced fault diagnostics, modular, plug and play field replaceable PCBs and Ethernet remote control and monitoring. This product now offers unparalleled availability to the end user.

Can be supplied with or without LCD screen

A standard but customisable 6U chassis and "soft" re-configurable control system enables many options to be easily and quickly configured.



- Rugged, ultra-reliable design
- Advanced Self-Diagnostics
- Ethernet interface - Graphical User Interface to run on any PC or laptop with a standard browser
- Remote Management and diagnostics
- RF forward sample port available
- ISO9001 Accredited Quality Assurance

RF Specifications

	Min	Typ	Max	Unit
Frequency	6.0		18	GHz
Output Power	280	315		W CW
RF Input Amplitude		0	+5	dBm CW
Fwd Power Monitor		-50		dB
Load VSWR*			3:1	ratio
Reverse Power Protection		25%		Full Power
Spurious		-40	-30	dBc
Harmonics		-6	-5	dBc
Beam ON Noise		-15	-10	dBm/MHz

* Note: The maximum Load VSWR is the trip level for damage protection when operated at full power. For full performance TMD recommends load VSWR of 1.5 : 1 or better.

Mechanical

Parameter	Value
Width	19" Front panel
Height	6U Front panel height
Depth	800mm, excluding handles (provision for external EMC shield at rear)
Weight	43kg ±5%
RF Input Connector	Type: N Female, 50 ohm
RF Sample Port	Type: N Female, 50 ohm, nominally -50dB wrt. RF output
RF Output Connector	Type: WRD 650
Ethernet Input	RJ45
Mains Input	IEC C20 male
Cooling	Integral forced air cooling – air entry front and exit rear

Electrical Specifications

	Single Phase	Three Phase
Input Voltage	240 V ±10%*	208 V_{LL} ±10%**
Frequency	50/60 Hz	50/60 Hz
Power Consumption	Typ: 1450 W, Max 2000 W	Typ: 1450 W, Max 2000 W

*For 110-120 Vrms electrical supplies, the equipment can be connected to a split phase supply in order to meet the voltage requirement
** V_{LL} is defined as the voltage across two electrical phases

Environmental

Parameter	Value
Vibration	Military Standard 810G- Transport
Operating Temperature	0°C to +40°C
Non-Operating Temperature Limit	-10°C to +50°C
Humidity	80% maximum, non-condensing

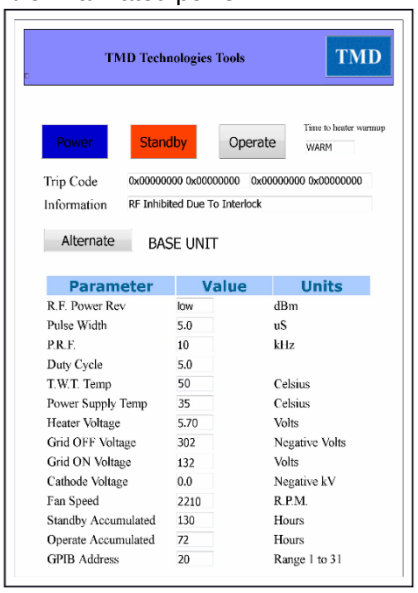
Protection

The amplifier has advanced TWT and power supply protection,

- Heater, Grid and Cathode Power Supply continual monitoring
- VSWR Protection – unit will trip if reverse power exceeds 25% of max rated power
- TWT Current and Voltage Protection
- TWT Arc Protection
- TWT and PSU Over Temperature
- Standby and Operate Accumulated Hours
- Input Modulation Limit Check on Pulse Width, Pulse Repetition Frequency and Duty Cycle

Remote Interface and/or Integral LCD Screen

The web page based interface shows every parameter on a single page with no need for annoying menus. All values are updated in real time.



Example: Integrated Web Sever

Enhanced availability through Fault Diagnostics

1. Detailed trip reasons are displayed on the web page
2. TMD can connect to the unit over the internet (with the customers permission) to diagnose and support any fault in more detail
3. All power supplies are field replaceable items that slot in from the rear panel – new ones can be fitted in a matter of minutes
4. The amplifier will log operational hours and any tripped states with a date stamp throughout its life. This greatly aids diagnostics, for instance, TMD can assess (when allowed) whether a TWT is near end of life and arrange a replacement TWT so the amplifier is available when you need it.

Available Options

Option	Part Number Addition
5" LCD Screen	-S
Rear Panel RF	-R
RF Inhibit BNC	-IN
IEEE GPIB / RS-232 / RS-422 / Serial USB *	-GP / -R2 / -R4 / -US
Ethernet Web Interface Fiber-Optic **	-FO
Rack Slides (100% extension)	-RS
3-Phase 110V	-3P
Reflected Power Monitoring Port	-RP
External Accessories ***	-E

* The serial interfaces are available as well, if requested.
** The unit comes with a RJ45 Ethernet port as standard or alternative optional Fibre Optic.
** Up to 100us on selected models only.
*** The External Option can include Harmonic Filters, RF Adapters, … which need to the requested and specified in the Configuration Summary

For Example: PTCM1000-S-IN-RS has a Screen, RF Inhibit and Rack Slides.