

Communications & Power Industries - Instrumentation Amplifiers

The PTCM1027/PTCM1127 is a CW/Pulsed traveling wave tube (TWT) amplifier with high efficiency, broad instantaneous bandwidth and high gain when compared with solid state amplifiers.

CPI TMD's heritage in ultra-reliable amplifiers have improved the capability of its 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.

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

To learn more about CPI EDB's instrumentation amplifiers capabilities, contact CPI at wecare@cpii-int.com or call +44 (0)20 8573 5555



Example PTCM: Can be supplied with or without LCD screen

FEATURES:

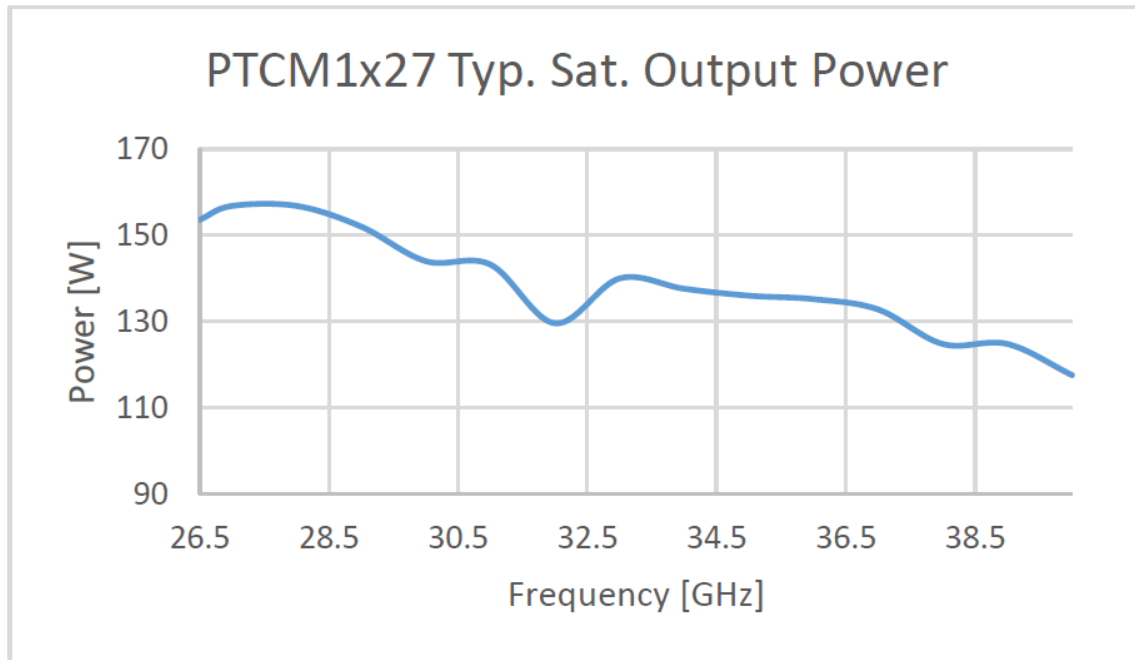
- Rugged, ultra-reliable design
- Advanced self-diagnostics
- Ethernet interface - graphical
- User interface to run on any PC or laptop with a standard browser
- Remote management and diagnostics
- RF forward sample ports available
- ISO9001 accredited quality assurance

BENEFITS:

- Continuous monitoring of heater, grid, and cathode voltage
- TWT current and voltage protection
- TWT arc protection

APPLICATIONS:

- EMC/radiated immunity
- Communications
- EW
- Radar
- RF components testing
- Scientific



RF Specifications

Frequency range	26.5 to 40.0 GHz
Peak output power	
PTCM1027 - 26.5-37.0 GHz	120 W min 145 W max
PTCM1127 - 37.0-40.0 GHz	100 W min 125 W max
RF input amplitude	0 typical
	+5 max dBm CW
Fwd power monitor	-50 dB
Load VSWR *	1.35:1 typical
	2.0:1 max radio
Reverse power protection	20% full power
Spurious	-50 typ -30 max dBc
Harmonics	Out of band dBc
Beam of noise	-25 typ -20 max dBm/MHz

* Note: The maximum Load VSWR is the trip level for damage protection when operated at full power. For full performance CPI EDB recommends load VSWR of 1.35:1 or better.

Mechanical

Width	19" front panel
Height	6U front panel height
Depth	800mm, excluding handles (provision for external EMC shield at rear)
Rough weight	103.6 lbs (47 kgs) typical
RF input connector	Type: K female, 50 ohm
RF sample port	Type: K female, 50 ohm, nominally -50dB wrt. RF output
RF output connector	Type: WR-28
Ethernet input	RJ45
Mains input	Single phase: IEC C20, three phase: L2120-FI (optional)
Cooling	Integral forced air cooling – air entry front and exit rear

Electrical Specifications

Input voltage

Single phase	110V or 220-240 V $\pm 10\%$
Three phase	208 V _{LL} $\pm 10\%^*$

Frequency

Single phase	50/60 Hz
Three phase	50/60 Hz

Power consumption

Single phase	Typ: 700 W, max 800 W
Three phase	Typ: 700 W, max 800 W

*V_{LL} is defined as the voltage across two electrical phases

Environmental

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 features advanced TWT and power supply protection:

- Continuous monitoring of heater, grid, and cathode voltage
- VSWR protection – the unit will trip if reverse power exceeds 20% of max rated power
- TWT current and voltage protection
- TWT arc protection
- TWT and PSU over temperature protection
- Accumulated hours monitoring for standby and operate modes

- 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 displays every parameter on a single page with no need for submenus. All values are updated in real-time.

Parameter	Value	Units
R.F. Power Rev	low	dBm
Pulse Width	5.0	us
P.R.F.	10.0	kHz
Duty Cycle	5.0	%
T.W.T. Temp	50	Celsius
Power Supply Temp	35	Celsius
Heater Voltage	5.70	Volts
Grid OFF Voltage	302	Negative Volts
Grid ON Voltage	132	Volts
Cathode Voltage	14.3	Negative kV
Fan Speed	2210	R.P.M.
Standby Accumulated	130	Hours
Operate Accumulated	72	Hours
GPIB Address	20	Range 1 to 31

Example: Integrated web server page

Enhanced availability through fault diagnostics

1. Detailed trip reasons are displayed on the web page
2. CPI 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 accessed via the rear panel and 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, CPI TMD can assess (when permitted) whether a TWT is near end of life and arrange a replacement TWT so the amplifier is available when you need it.

Options	Part number additions
5" LCD Screen	S
Rear RF Output	R
Rear RF Input	RI
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 208 VLL	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.
 *** The external option can include harmonic filters, RF adapters, etc., which need to be requested and specified in the configuration summary

For Example: PTCM1000-S-IN-RS has a screen, RF inhibit and rack slides



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For more detailed information, please refer to the corresponding technical description if one has been published, or contact CPI TMD Technologies. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI TMD Technologies before using this information for system design.