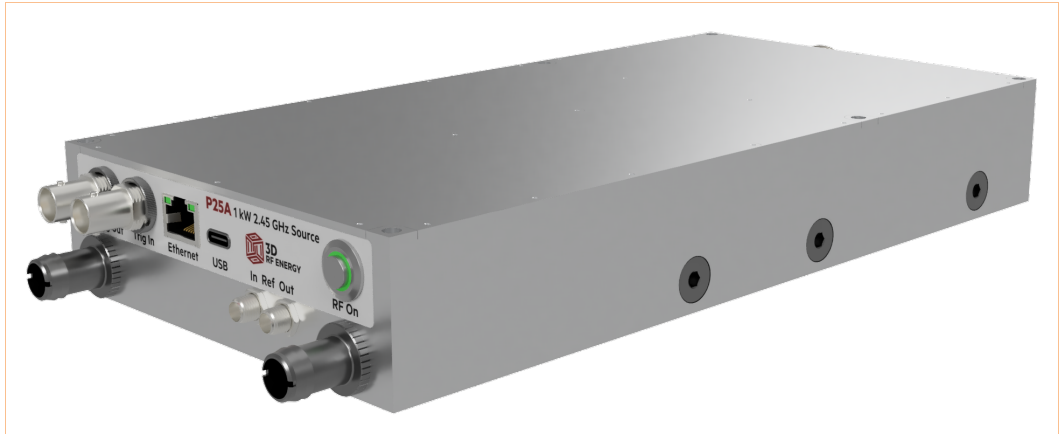


P25A

1kW 2.45GHz RF source

Rev. 1 — 2 February 2023

Product brief



The P25A is a compact 1kW, 2.45GHz RF power source designed for industrial applications. It integrates two 500W production pallets with a MMIC driver, robust housing, internal isolator, and an RF exciter.

The integrated MCU-controlled exciter provides a stable low-noise RF signal, with precise control over frequency, power level, and pulse modulation. It provides system communication, calibration, temperature and current monitoring, and closed-loop control of output power.

The P24A PA module contains the same power amplifier and driver without an exciter.

Features

- 1kW CW/pulsed RF source
- MCU monitoring, control, protection
- Forward power monitoring/levelling
- Ethernet interface standard; RS-485 Modbus and SPI interfaces available as options
- Compact 26 x 13 x 4cm

Applications

- Building block for high-power generators
- Materials processing
- Solid-state cooking
- Microwave chemistry
- Plasma generation



Specification summary

RF characteristics

maximum output power	≥ 1kW CW with 30°C water inlet temperature
programmable output power	40 to 61dBm, resolution 0.1dB
programmable frequency range	2.4 to 2.5GHz, resolution 1MHz (integer mode), 1Hz (fractional mode)
power stability	≤ ±0.5dB
efficiency	60% typical at 1kW Pout
pulse rise/fall time	40ns typical
pulse flatness	≤ 0.5dB droop across pulse
harmonic signals	≤ -30dBc at 1kW Pout
out-of-band spurious signals	≤ -70dBc
safe load mismatch	unlimited VSWR (internal isolator)
frequency reference output	10MHz ± 3ppm, 10dBm square wave output
frequency reference input	10MHz @ -10 to +20dBm (standard configuration) 2.4 to 2.5GHz @ 0dBm typical (EXT LO configuration)
RF connectors	7/16 (f) output; SMA (f) reference input/output

Control, monitor, external interfaces

pulse modes	CW; internal pulse with external gate; external pulse
internal pulse generator	period 2μs to 128ms; pulse width 1μs to 65ms
trigger input and output	TTL input and output triggers for pulse and gate control, BNC (f)
monitors	incident and reflected RF power; drain current, voltage, temperature for PAs and driver
communication interfaces	Ethernet standard; RS-485 Modbus (RTU/ASCII), SPI optional
USB	USB 2.0 Type-C for flash drives, serial debug interface
interlock	screw terminal block
DC power	+32V, ≤ 60A, M5 screw terminals

Physical & environmental

size	265 x 135 x 40mm, exclusive of connectors
mass	3kg
operating temperature	0 to 60°C water or mounting surface
cooling	recommended water at 5L/min, nickel-plated path compatible with Al and Cu heat exchangers; optional conduction cooling to user heatsink
cooling fittings	G 1/4 BSPPP

