

## CPI Electron Device Business - Traveling Wave Tube Transmitter

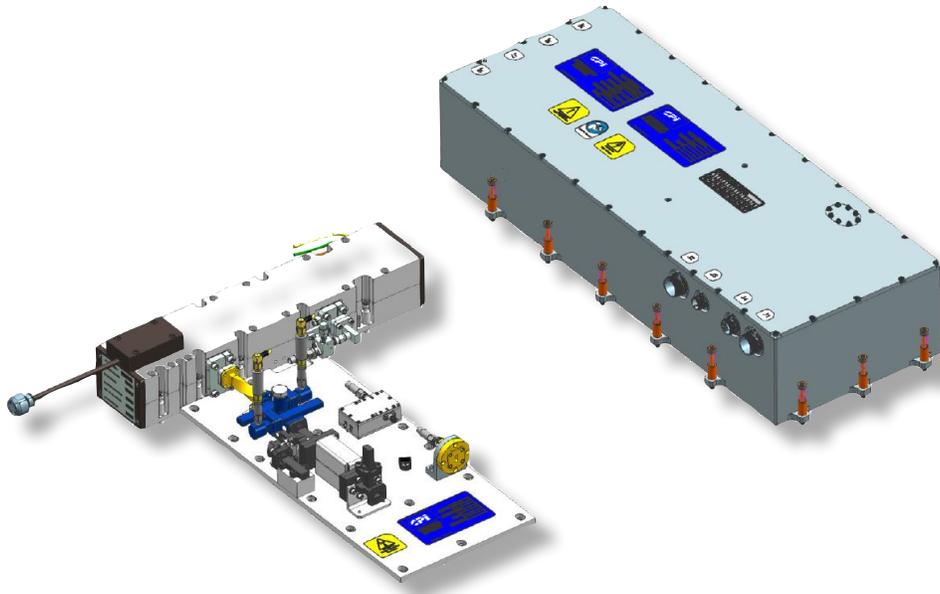


Image includes output waveguide assembly, excludes LV harness, HV cables and prime power harness

The PTX8815 is a high-power Ka-band traveling wave tube amplifier (TWTA).

The amplifier includes a high-voltage power supply and a matched coupled cavity traveling wave tube (CC TWT).

The TWTA undergoes comprehensive testing according to the agreed acceptance test procedure (ATP) before delivery, ensuring it meets the demands of high-performance radar systems.

**To learn more about CPI EDB's transmitter capabilities, contact CPI EDB at [ElectronDevices@cpi-edb.com](mailto:ElectronDevices@cpi-edb.com) or call +44 (0)20 8573 5555**

### FEATURES:

- Frequency: 34.0 - 36.0 GHz
- Duty cycle: 12% average 18% maximum for less than 2ms
- Pulsetwidth: 0.7 - 50 $\mu$ s

### BENEFITS:

- Excellent thermal management
- High electrical efficiency
- Wide operating temperature range
- Allows remote operation and status monitoring

### APPLICATIONS:

- Radar systems

## RF Characteristics

Frequency range	34.0 to 36.0 GHz
Minimum RF output	500 W 34.0 – 34.5 GHz
Power (saturated)	900 W 34.5 – 35.5 GHz 500 W 35.5 – 36 GHz
Duty cycle	12% average 18% maximum for less than 2ms
RF input power (for saturation)	+4.5 to + 9.5 dBm with pre-amplifier +30 dBm typical without pre-amplifier
Noise power density (Beam On)	-20 dBm/MHz max
Noise power density (Beam Off)	-95 dBm/ MHz typical
Input VSWR	Better than 2.0:1
Load VSWR (no damage)	2.0:1 max
Video pulse width	0.7 to 50µs
Pulse delay (ON command to RF out)	300 ns max
Pulse delay (OFF command to RF out)	300 ns max
Pulse repetition frequency (PRF)	70 kHz max

## Prime Power Requirements

Prime power	115 V, 3 phase, delta connected, 60 Hz
Aux power	28 V DC
Power consumption	1100 VA nominal, 1700 VA for 10 ms

## Connectors

Primary power input connector	801-033 series "mighty mouse"
Control and monitoring connector	801-033 series "mighty mouse"
RF input connector	2.92 mm (K) female
RF output connector	WR-28

## Control and Monitoring

Control inputs	Standby / operate Battle override (inhibits over-temperature shutdown) TWT beam On Heater command
Status outputs	Standby HV On Fault Warm up
Fault protection	HVPSU shuts down under fault conditions An over-temperature trip is incorporated Forward and reverse power monitoring
Fault outputs	PSU and TWT over-temperature
Heater warm-up	180 seconds from power on

### Notes:

- 1 Other characteristics are available to special order

## Mechanical

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Mechanical outline

(excluding connectors and waveguide)

Power supply: 540 x 216 x 126 mm

Tube: 326 x 70 x 78 mm

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Weight

Power supply: 17 kgs max

Tube: 5.0 kgs max

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Orientation

Any

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Finish

Nickel plated (HVPSU)

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Markings/Labels

Type number

Model number

Serial number

Connector indent

Hazard warning

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Cooling

Conduction via baseplate, +85 °C maximum hot spot temperature, measured under collector hotspot

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## Environmental

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Ambient temperature

-10 °C to + 55 °C

(operating)

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Ambient temperature

-40 °C to + 70 °C

(non-operating)

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Baseplate temperature (TWT)

85 °C maximum

(operating, measured under collector hotspot)

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Altitude (operating)

0 - 5,000 ft

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Vibration

0.2 g<sup>2</sup>/ Hz 10 to 40 Hz

(operating - 3 axes)

0.04 g<sup>2</sup>/ Hz 40 to 2000 Hz

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Shock (3 axes)

30 g, 6 ms half sine

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Humidity (non condensing)

95% relative humidity as per MIL-STD-810D

Test method 507.5

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EMC performance

MIL-STD-461E- requires external EMC filter

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

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