EIK POWER SUPPLY/MODULATOR
Pulsed Power Supply

Model VPW3493 is a power supply modulator (PSM) intended to operate a wide range of CPI pulsed Extended Interaction Klystrons (EIK) in a variety of applications. It is an integral AC powered unit, configured using a floating deck modulator and filament supply coupled to a synchronously switched high voltage power supply. The power supply is designed to provide high stability for improved EIK performance with low stored energy to protect the EIK should faults occur.

An optional Control and Monitoring Unit (CMU), VZW3556, provides modulation control and monitoring for the PSM. Synchronizing and triggering signals are generated within the control unit which also serves to monitor, protect and report on the status of the transmitter. The CMU functionality could be provided by the user's system.

Features	
Input Voltage	209 to 241 VAC
Pulse Width	0.2 to 50 µs
Pulse Rate Frequency	Up to 50 kHz
Duty Cycle	Up to 10 %
Temperature Operating	0 to +50 °C
Temperature Non-operating	-40 to +60 °C
Humidity	95% relative non-condensing
Altitude	3,000 m
Dimensions (LxWxH mm)	585x305x190
Mass	40 kg
Conduction Cooled	
Optional Control & Monitoring Unit	
Broad range of pulsed EIKs supported	

Model VPW3493

The PSM performs the following mechanical and electrical functions:

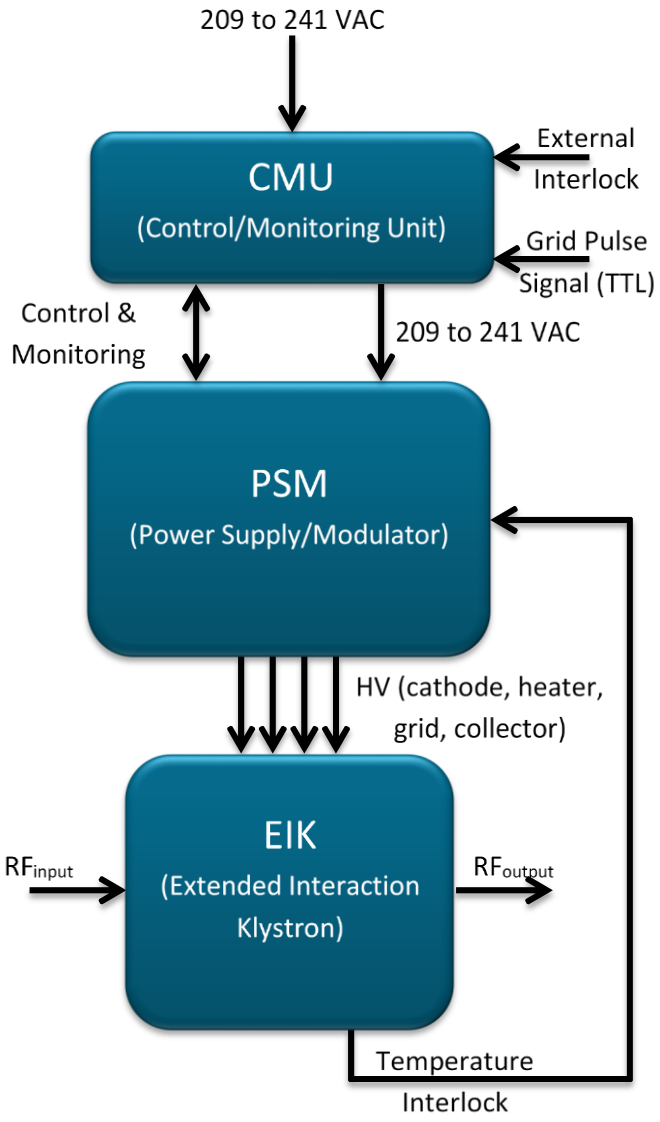
- Provides suitably regulated cathode-to-body, collector-to-body (or cathode), cathode heater, focus electrode bias and focusing voltages
- Provides coherent high voltage power supply switching and EIK focus electrode pulsing
- Monitors voltages, currents and temperatures for fault conditions and performs suitable trip functions
- Mechanical configuration provides robust mounting, suitable PSM cooling and personnel safety from high voltages and hot surfaces

The optional Control and Monitoring Unit, used for operational monitoring when not supplied by the radar control system, is housed in a standard 19 inch aluminum chassis. It includes an internal preset pulse generator.

Protection circuits are employed to prevent damage to the EIK and the PSM by inhibiting operation under the following conditions:

- Cathode warm-up high voltage delay
- Average Body over current
- Cathode over current
- Cathode voltage out of regulation
- Transmitter over-temperature
- EIK collector over-temperature or low coolant flow
- Modulator input not valid (pulse width and/or duty cycle out of range)

These faults prevent or remove the application of high voltage to the EIK except "Modulator Input Not Valid" which will prevent pulsing but will not prevent the application of high voltage to the EIK. All high voltage assemblies (including the floating deck modulator) employ dielectric insulation to allow operation under the specified environmental conditions in any physical orientation.



Typical Supply
Control and monitoring unit (CMU)
HV power supply/modulator (PSM)
3 m cable set for connecting CMU to PSM
EIK with 0.4 m HV cables connecting EIK to PSM

Typical Operating Values	
Cathode Voltage	-12.5 to -21.0 kV wrt ground
Heater Voltage	-5.5 to -6.5 V wrt cathode
Collector Voltage	Collector depression Factory set
Grid Voltage (off)	-3.0 to -3.5 kV wrt cathode
Grid Voltage (on)	-55 to -10 V wrt cathode
Cathode Current	750 mA
Body Current	40 mA

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