DIVERSIFIED TECHNOLOGIES, INC.®

Diversified Technologies, Inc.

Systems In Action

Klystron Test Stand showing controls and auxiliary supplies (left two cabinets), the high voltage power supply (center cabinet), and high voltage modulator (right two cabinets).

C-band Klystron Transmitter for weather radar applications with solid-state pulsed cathode.

Radar Transmitters

DTI provides compact, rugged, reliable, and efficient turn-key transmitter systems and radar retrofits for a wide range of fixed and mobile radar applications. Meeting the most demanding military and commercial requirements, DTI's solutions are fully solid-state, utilizing high performance power supplies, pulse modulators, voltage regulators, and state of the art control systems.

DTI's PowerMod™ solid-state, high voltage switches work as high power cathode modulators for a variety of vacuum electron devices (VEDs) such as TWTs, klystrons, CFAs, or magnetrons, providing sub-microsecond arc protection. The same cathode switches provide arc protection in DTI transmitters with modulating anode or grid modulators. DTI's transmitters are inherently pulse width agile, and can open in less than a microsecond, eliminating the need for a conventional crowbar. PowerMod switches are ideal for retrofits, test sets, and new designs. DTI has delivered state-of-the-art systems for high power radars from VHF to W-band.

Modulation Type	VEDs	Platform
• Cathode Modulated	• Klystrons	• Ground-fixed
• Anode Modulated	• TWTs	• Ground-mobile
• Grid Modulated	• CFAs/Magnetrons	• Shipboard
• Continuous	• IOTs	• MIL-Qual
	• Gyrotrons	

Frequencies	Avg. Beam Power	Peak Beam Power	PRFs	Pulse widths
• VHF – W-band	• 1 kW – 2 MW	• 10 kW – 250 MW	• To 300+kHz	• 10 ns-CW

Radar Modernization

A transmitter upgrade using modern, solid-state technology is a cost-effective solution to high failure rates and lengthy repair procedures common to transmitters using vacuum switch tubes. Retrofits commonly range from select components to replacement of the entire transmitter. In most cases, the modernization is accomplished within the existing structural envelope, whether a typical shipboard cabinet or a transportable shelter. DTI can provide the upgrades as fully MIL-Qualified, field-installable kits ready for installation into existing mounted cabinets, or in new enclosures.

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Radar Transmitters

Turn-Key Transmitters

DTI's turn-key systems typically include all electronics between the power source and the VED or RF output device (tube), protecting the VED from damage from arcs, and extending the VED life. This includes switching power supplies, solid-state series opening switches, solid-state modulators, cooling networks and complete, automated control and monitoring systems.

DTI's radar transmitters offer:

- Very high levels of tube protection and reliability
- Deployment-ready, turn-key solutions
- Significantly reduced O&M costs
- "Plug and Play" retrofits to complete systems in transportable shelters
- MIL-QUAL compliance for ground, ship, air, and undersea applications
- Compact solid-state topologies
- Precision pulse control
- State-of-the-art controls
- Rugged design for years of reliable operation
- Complete cooling systems
- Integrated fault detection with full, internal protection and µs response

Transportable Shelter housing X-band Transmitter Components. This weatherproof shelter contains a high-power RF amplifier, two 200 kW high voltage switching supplies, capacitor bank, power distribution unit, transmitter controls, environmental controls, and cooling/air conditioning systems.

Systems In Action

Magnetron Transmitter Upgrade for the US Navy's AN/SPN-41, used as a critical backup landing aid on aircraft carriers. Over 100 units delivered to date.

Compact, Transportable Transmitter, comprised of the TWT cabinet (left) and capacitor bank cabinet (right). The TWT cabinet houses the TWT, high voltage switch, controls and auxiliary power supplies. The capacitor cabinet houses the high voltage capacitor bank, high voltage power supplies and power distribution unit.

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