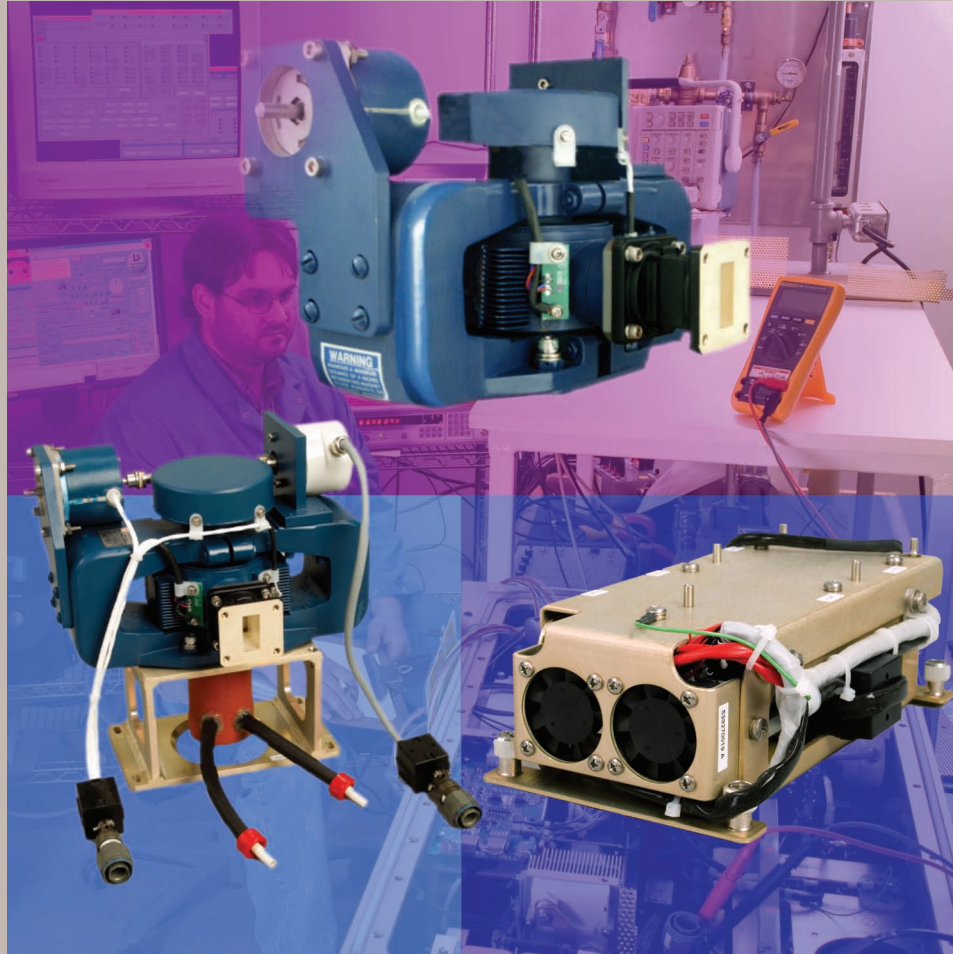


Transmitters



communications

Electron Devices

Electron Devices Transmitters

L-3 Electron Devices designs and manufactures a growing product line of microwave transmitters for electronic warfare, threat simulators, communications, navigation and guidance, scientific research and system validation testing. Power levels from several hundred watts to over 1 megawatt are available in either pulse or CW mode. L-3's unique solid-state modulator provides an infinite combination of pulse parameters, thereby replacing the traditional PFN as

well as older system designs that incorporate bulky pulse transformers and switches. All the benefits of a hard-tube modulator have been replaced with a compact, high-reliability solid-state switch.

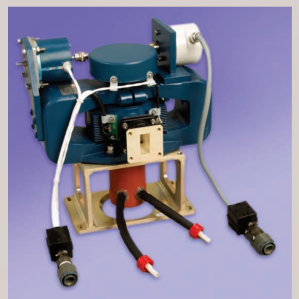
Units can be customized to meet customer-specific needs and performance goals. The choice of a magnetron, TWT, MPM or solid-state PA depends completely on

Electron Devices Transmitter Highlights



- Compact, lightweight design using solid-state switch technology
- Infinite pulse variability, fast rise and fall times, minimum pulse-jitter
- All designs are easily adapted from our standard configuration to "full customized units" as required by customer needs
- In-house test capability for temperature, humidity, altitude, shock and vibration
- Ethernet interface standard
- All transmitters are housed in rugged, rack-mountable cabinets (Power supplies and RF components are configured on a single chassis to provide for compact and economical design. Control capabilities include local control with front panel GUI or remote Ethernet TCP/IP standard.)

L-3 Electron Devices' transmitters take advantage of years of experience in the design and production of magnetron, TWT and klystron tubes. Development timelines for the electron tube are matched to the overall transmitter development, thereby reducing risk and assuring compatibility within the transmitting system. Units can be designed using rugged commercial or military off the shelf components and the tube designs can be easily modified to meet new requirements. Full documentation packages are supplied with each transmitter.



system operational requirements. L-3's Transmitter Engineering Group can custom configure each transmitter and optimize its design for land-mobile, shipboard or airborne applications. All transmitters are designed and baselined from our standard VME-based architecture for control, monitoring and performing online BIT. They incorporate standard BIT functionality, which is easily enhanced for more stringent applications. MTTRs of less than one hour are a design goal for all models.

L-3 Electron Devices has designed and manufactured microwave vacuum devices for over 50 years. Our ISO-9001:2000 certified facilities in Williamsport, PA, and San Carlos, CA, produce hundreds of microwave tubes, amplifiers and other vacuum devices for a variety of military and commercial systems. Our military product lines meet and exceed the stringent operation and reliability requirements of today's advanced radar, EW, missile and communications systems.

Transmitter Comparison Analysis

Features & Capabilities	L-3 Communications EDD	Competitors
Control System	Standard control system architecture and S/W for ALL transmitter types: TWTA's, Magnetrons, Klystrons and CTO's	Custom configuration for each type of transmitter
Card Cage	Standard 6U VME64x Card Cage fully EMI/RFI Isolated	Not available – Card cage is hand wired and fixed with no flexibility.
VME Slot Availability	VME slot available for single board, threat simulation tool embedded	Not VME capable or EMI/RFI isolated
Expansion Slots	(4) 6U Expansion slots available for multiple upgrades/options	Not available
VME Card	L-3 FPGA-based VME card, configurable to customer requirements with software/hardware selectable features/options	Not available – Card cage full with 3U Cards (poss. 1 slot)
CPU	MOTS/COTS CPU fully environmentally capable	Not available, vendor developed, non-standard
Operating System	Real Time Operating System (RTOS) standard with OTS standard S/W provided by Gov't trusted source	Not available, or possible added-cost option
Built-In Test (BIT)	Built-In Test (BIT) is standard	Not available, or possible added-cost option if memory and processor capability is sufficient
User Interface Capability	Multiple User Interface Capability <ul style="list-style-type: none"> • Front Panel Keypad & Display – local control and maintenance • USB Standard – local data access • Ethernet 10/100/1000 Standard – remote control • RS 422 Std or internal trigger standard – Pulse Trigger 	GPIB Standard, others are options at added cost. No internal trigger option or standard
IP V6 Ready	System ready for IP V6 implementation	Unavailable, no planned expanded capability
Built-In Capabilities	Standard Built In Interfaces/Capabilities <ul style="list-style-type: none"> • Data logging (time frame selectable) • Remote internet monitoring for customer support, remote customer-defined command response S/W interface – match C/R S/W exchange requirements and data structure • Troubleshooting • Upgrade downloads • Password protection for remote, operator and maintenance security 	Unavailable or possible option at extra cost.
RF Sample Port	RF Sample Port – Forward RF sample	Option available
EMI/RFI Sensitivity	F/O or differential filtered control lines to reduce EMI/RFI sensitivity	Standard wire interfaces prone to EMI/RFI Problems
LRU Repair	Field LRU replacements to the 85% + level	Standard field repair to minimum number of LRU's
Digital Signal Processing	Uses DSP to measure actual RF Duty for Filament Scheduling function – references an ideal scheduling-curve for each tube type	Possible option available

Product Information

Model Number	Band	Frequency (GHz)	Power (kW)	Source
TXG 1001	G-Band	4.7 – 5.3	480	Magnetron
TXG 1002	G-Band	4.9 – 5.1	350 – 600	Magnetron
TXH/ 1001	H/I Band	7.6 – 8.5	185	Magnetron
TXH 1001	H-Band	6.3 – 6.75	600	Magnetron
TXH 1002	H-Band	6.8 – 7.3	225	Magnetron
TXH 1003	H-Band	6.9 – 7.1	5	CW-Klystron
TXH 1004	H-Band	6.9 – 7.4	150	Magnetron
TXI 1001	I-Band	8.5 – 9.6	160	Magnetron
TXI 1002	I-Band	9.9 – 10.0	0.5	CW-TWTA
TXJ 1001	J-Band	12.65 – 13.65	5	Magnetron
TXJ 1002	J-Band	12.8 – 13.3	35	Magnetron
TXJ 1003	J-Band	13.3 – 14.0	45	Magnetron
TXJ 1004	J-Band	14.6 – 15.2	250	Magnetron
TXJ 1005	J-Band	14.6 – 15.2	75	Magnetron
TXUHF 1001	UHF	0.67 – 0.85	80	CTO

Other frequency bands and powers available on request.

TWTA Amplifiers

Model Number	Frequency (GHz)	Type	Power (kW)
TWTA 001	2.0 – 18.0	Pulsed	3.0
TWTA 002	2.0 – 18.0	CW	1.0

L-3 Electron Devices provides a full line of TWTA Transmitters for narrower bandwidth applications. Please call us regarding specific frequency bands and their availability for your transmitter requirements.

1035 Westminster Drive, Williamsport, PA 17701
Phone: 570-326-3561 Toll Free: 888-861-1843 Fax: 570-326-2903

e-mail: wpt.marketing@L-3com.com
web: www.L-3com.com/edd

Transmitter JC 11/07

Cleared by DOD/OFOISR for public release under case number 07-S-0228
on November 15, 2006.



communications

Electron Devices