



Communications
& Power Industries

Microwave Products

For radar and electronic warfare,
industrial, medical, communications
and scientific applications



Electron Device Business

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Radar & Electronic Warfare

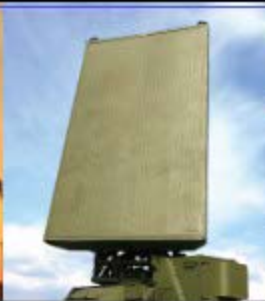
CPI products are found in military radar systems around the world.

Airborne Radar, ECM and Missile Seeker

- Navigation
- Terrain following
- Ground mapping
- Air and ground surveillance
- Weapons control
- Anti-ship missiles
- Cruise missiles
- Air defense systems
- Missile defense systems

Naval Radar

- Naval surveillance
- Navigation
- Fire control
- Shipboard defense systems
- Air traffic control
- Aircraft landing systems
- Shipboard defense systems
- Airborne surveillance



Ground-based Radar:

- Air defense radars
- Missile control
- Radar simulators
- Air surveillance and tracking
- Range tracking
- Satellite tracking systems
- Ground and sea surveillance
- Artillery locating systems

Proven technology...



Commercial & Industrial

CPI is a major supplier of microwave and millimeter-wave components and subsystems generating and controlling RF power in radar systems and radar-based sensors.

Air Traffic Control Radar

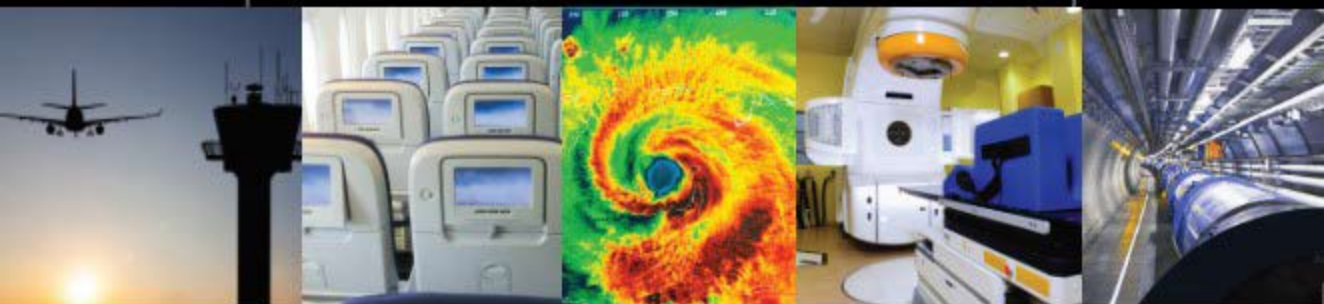
- Air Surveillance Radar
- Air Route Surveillance Radar
- Surface Movement Radar
- Terminal Doppler Weather Radar (TDWR)
- Precision Approach Control and Landing Systems

Medical/Industrial

- Image-guided radiosurgery
- MRI
- IMRT
- Cargo screening
- EMI/EMC Testing

Scientific

- High energy particle accelerators
- Superconductors

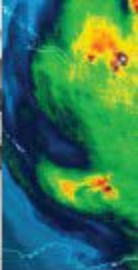
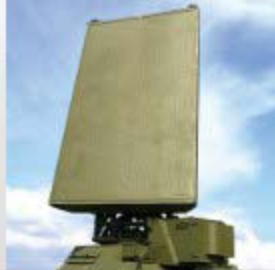


Communications

- Direct broadcast satellite
- Satellite uplink market
- Satellite transmissions and terrestrial broadcasting
- Tactical communications sets
- High-frequency communications networks

..in new designs, legacy sustainment, and upgrades





Solid State Power Amplifiers

- High gain & high efficiency
- Excellent pulse fidelity
- Outstanding spectral performance



- Gallium Nitride transistor technology
- Air- or liquid-cooled
- Pulsed up to 10% duty
- Designed for demanding applications
- Frequencies from 1 GHz to 10 GHz
- Power levels from 1 kW to 50 kW

Transmitters and Power Supplies

- Fully integrated systems
- 19-Inch rack mount versions
- Airborne, naval & ground applications
- Wide RF bandwidth
- Commercial & EW applications



- Magnetron transmitters
- Klystron transmitters
- Helix & CCTWT amplifiers
- IOT transmitters
- Gyrotron transmitters
- High-voltage power supplies
- Frequencies from 1 GHz to 40 GHz
- Power levels from 100 W to 2 MW



Integrated Microwave Assemblies (IMAs)

- High-power handling
- Low-noise figure
- Calibrated couplers
- Variable attenuation



- Integrated assemblies
- Receivers
- Upconverters
- Pulse compressors
- Voltage-controlled oscillators
- Low-noise amplifiers
- Switches
- Multifunction components
- Frequencies from 100 MHz to 40 GHz

Receiver Protectors Control Components

- Fast switching time
- High peak power
- Superior broadband isolation
- Very fast recovery times
- Low output leakage



- Active and passive receiver protectors
- Solid state, plasma, ferrite limiters
- Multipactors
- High-power solid state switches
- Duplexers
- Digital or analog attenuators
 - Waveguide, coax, or microstrip
- Pressure windows
- Frequencies from 100 MHz to 40 GHz
- Power levels from milliwatts to megawatts



TWTs

Coupled Cavity, Helix and Ring Loop



Coupled-cavity TWTs:

- Frequencies from 175 MHz to 3.9 GHz
- Power levels from 5 kW to 1 MW

Helix TWTs:

- Frequencies from S-band to Ka-band
- Air- and conduction-cooled
- Power levels from 25 W to 2500 W
- CW & Pulsed

Ring loop TWTs:

- Frequencies from 1 GHz to 6 GHz
- Power levels from 1 kW to 15 MW

Klystrons and Gyrotrons

- High-power handling
- Long life
- Exceptional frequency stability



Klystrons:

- CW power up to 1.2 MW
- Pulsed power up to 50 MW
- Frequency range: 300 MHz to 35 GHz

Gyrotrons:

- Power levels up to 1.5 MW CW
- Frequencies up to 600 GHz



Magnetrons

- High-power handling
- Long life
- Exceptional frequency stability



- Coaxial magnetrons
- Frequency agile magnetrons
- Beacon magnetrons
- Injection locked magnetrons
- Frequencies from 1 GHz to 35 GHz
- Power levels from 100 W to 35 MW

Power Couplers

- Proven designs
- Full class 10 (ISO-4) cleaning & assembly
- Vast expertise building an array of power couplers and electron devices



- Power couplers for:
 - Superconducting accelerators
 - Free electron lasers
 - Spallation neutron sources
 - Energy recovery LINACs
 - Third harmonic cavities
- Frequencies from 175 MHz to 3.9 GHz
- Power levels from 5 kW to 1 MW



Electron Device Business

Beverly Microwave Division (BMD)

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Designs and manufactures RF and microwave products for radar, industrial, medical and scientific applications.

Contact Beverly Microwave Division for information on updating your radar systems.

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Develops and manufactures a broad array of microwave vacuum electron devices spanning the power/frequency spectrum.

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Designs, manufactures, and tests radomes, Radant lens electronically steerable antenna, reflectors and structural composite products for use in high-performance airborne, ground-based, shipboard and submarine installations.

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Satcom & Medical Products Division

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A worldwide leader in uplink amplifier products and systems for satellite communications and in high-frequency medical X-ray generators, integrated system controls, digital imaging solutions, and compact power supplies for physical vapor deposition applications.

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Satcom & Antenna Technologies Division

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A multi-national manufacturer of high-performance, engineered satellite Earth stations, radar and HF antenna systems; design, analysis and manufacture of telemetry, communications, electronic warfare and radar antenna systems.

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