YOUR ULTIMATE SOURCE FOR ALL YOUR RF, MICROWAVE, MILLIMETER-WAVE PRODUCTS & SUB-SYSTEMS

AMPLIFIERS, ANTENNAS, MULTIPLIERS, SOURCES DETECTORS, SWITCHES, MIXERS, WAVEGUIDE PRODUCTS, MILLIMETER-WAVE COMPONENTS, FERRITE PRODUCTS AND SUB-SYSTEMS
INTRODUCTION

CERNEX, INC., is a company with a commitment to product excellence and technological expertise in state-of-the art thin-film hybrid and discrete microwave and millimeter-wave components, and sub-assemblies up to \textbf{325Ghz}. Our company was established to provide products and services to growing markets such as defense, aerospace, wireless telecommunications and fiber optic communications industry.

The company was incorporated in 1988 to develop and manufacture high quality thin-film hybrid gain modules, frequency multipliers, amplifiers, and various other microwave and millimeter-wave products for the commercial and military markets. Our excellent technical staff and production facility enable the company to respond quickly to customers’ needs.

Our goal is to achieve the highest quality performance, reliability, service and on-time delivery. This goal has allowed our company to maintain a steady growth over the past few years.

Our management team consists of a team of senior design engineers and sales/marketing staff with over 500 man-years of experience in the microwave and millimeter-wave businesses.
# NOMENCLATURE (08/09)

## AMPLIFIERS (Up to 110 Ghz)
- Gain Modules: CGM
- Broadband Low Noise: CBL
- Broadband Med. Power: CBM
- Broadband High Power: CBP
- Narrowband Low Noise: CNL
- Narrowband Med. Power: CNM
- Narrowband High Power: CNP
- Limiting Amplifiers: CLA
- Gain Control Amplifiers: CGC
- Temp. Control Ampl.: CTA
- Gain/Temp. Control Ampl.: CGT
- Gain Slope Amplifiers: CGS
- Surface mount: CCO
- DLVA: CDL

## FREQUENCY MULTIPLIERS
- CFM

## FREQUENCY DIVIDERS
- CDV

## FREQUENCY COMBINERS
- CCF

## FREQUENCY CONVERTERS
- Down Converters: CDN
- Up Converters: CUP

## ANTENNAS
- Rectangular Gain Horn: CRA
- Circular Gain Horn: CCA
- Microstrip Antenna: CMA
- Planar Antenna: CPA
- Wide Angle Scalar Feed Horn: CWA
- Scalar Feed Horn: CFH
- Orthomode Transducer: COT
- Horn Lens Antennas: CHA
- Prime Focus Parabolic Antennas: CPF
- Casse Grain Antennas: CCG
- Circular Polarizer: CCP
- Linear-Circular Switchable Polar.: CLP
- Farraday Fixed Polarizer: CFP
- Farraday Switchable Polarizer: CSP
- Faraday Programmable Polarizer: CPP
- Parabolic Grid Antenna: CPG
- Parabolic Antenna: CPB
- GPS Antenna: CGP
- Patch Antenna: CAP
- Omni Directional: COD

## COUPLERS PRODUCTS
- Directional Couplers: CDC

## COUPLERS PRODUCTS Cont’d
- Cross Guide Couplers: CCC
- Magic Tee: CMT
- Bidirectional Couplers: CBC
- Power Samplers: CPR
- Hybrid Couplers: CHC
- Dual Direction Couplers: CDDC

## FERRITE
- Differential $\phi$-shift Circulators: CPC
- High Power Resonance Isolators: CRI
- T-Type Circulators: CTC
- Double Junction Circulators: CDJ
- Junction Circulators: CJC
- Junction Isolators: CJI
- Fullband Isolators: CFI
- Fullband Circulators: CFC
- Drop-in Isolators: CID
- Drop-in Circulators: CCD
- Full Band Ferraday Isolators: CFF
- Coaxial Isolators: COI
- Coaxial Circulators: COC
- High Power Coaxial Circulators: COH
- High power Waveguide Circulators: CWC
- High Power Waveguide Isolators: CWI
- Iso-Adapters: CIA
- Microstrip isolators: CMI
- Microstrip Circulators: CCM
- S.M. Isolators/Circulators: CSI/CSC

## FILTERS & DIPLEXERS
- Lowpass: CLF
- Bandpass: CBF
- Highpass: CHF
- Bandstop: CSF
- Image Rejection: CIF
- Diplexers: CDF
- Triplexers: CTF
- Switch Filter Banks: CSB
- Notch Filters: CNF

## OSCILLATORS & NOISE SOURCES
- Mech. Tuned Gunn Osc.: CMG
- Varactor Tuned Gunn Osc.: CVG
- Bias Tuned Gunn Osc.: CBG
- Injection Lock Gunn Osc.: CIL
- DRO: CDO
## SWITCHES
- **SPST Switch**: C1T
- **SPDT Switch**: C2T
- **SP4T Switch**: C4T
- **Rotary Switch**: CRT
- **Two Position Solenoid Switch**: CTP
- **Mechanical Switch (Electro-Mech.)**: CSM
- **Polarization Switches**: CSM
- **Mechanical Waveguide Switches**: CWS

## PHASE SHIFTERS
- **Phase Shifters**: CPS
- **Motorized Rotary Vane Phase Shifter**: CMP
- **Ferrite Phase Shifters**: CFS
- **Micrometer Cal. Phase Shifters**: CMS
- **Direct Reading Phase Shifters**: CDS
- **Digital Phase Shifters**: CSD
- **Differential Phase Shifters**: CDD

## TRANSITION & ADAPTERS
- **Waveguide to Waveguide**: CWW
- **Waveguide to Coax**: CKW
- **Rectangular to Circular**: CRC
- **Tapered Mode**: CTM
- **Flange Adapter**: CWF
- **Coxial Adapters**: CFW

## WAVEGUIDE PRODUCTS
- **Waveguide Section**: CSS
- **Circular Waveguide Section**: CSSC
- **Waveguide E Plane Bend**: CEB
- **Waveguide H Plane Band**: CHB
- **Waveguide Twist**: CTS
- **Waveguide Bends 90°**: CWB
- **Waveguide Short**: C SW
- **Adjustable Waveguide Short**: CAS
- **Rotary Joint**: CRJ
- **Frequency Meters**: CMF
- **Direct Reading Freq. Meters**: CDM
- **Hybrid Tees**: CHT
- **E & H Plane Series Tees**: CTE
- **Single Hybrid Ring**: CHR
- **E/H Plane Tuners**: CPT
- **90 degree Hybrid**: CBH
- **Circular Waveguide Section**: CCS
- **3dB Short Slot Hybrid**: CSH
- **Waveguide Flanges**: CWR

## TERMINATIONS
- **Coaxial Load**: CCL
- **High Power Load Termination**: CWL
- **Sliding Matched Termination**: CST
- **DC Block**: CDB

## MIXERS
- **Balance Mixers**: CMB
- **Harmonics Mixers**: CHM
- **Rejection Mixers**: CRM
- **I/Q Mixers**: CQM

## ATTENUATORS
- **Fixed Setting Attenuators**: CFA
- **Level Set Attenuators**: CSA
- **Micrometer Cal. Attenuators**: CMC
- **Direct Reading Precision Attenuator**: CDA
- **Pin Diode Attenuator**: CPD
- **Programmable Rotary Attenuator**: CRV
- **Voltage Controlled Attenuators**: CVA
- **Digital Controlled Attenuators**: CAD
- **Step Attenuators**: CAT

## DETECTORS
- **Finline Detectors**: CFD
- **Balanced Phase Detector**: CBD
- **Amplitude Detector**: CBD

## SUBSYSTEMS
- **Subsystems**: CSR

## POWER COMBINER/DIVIDER

## CABLE ASSEMBLIES
- **VOLTAGE REGULATORS**: CVR
- **EQUALIZER**: CGE
- **SYNTHESIZER**: CSY
- **PIN DIODE MODULATOR**: CPM
AMPLIFIES

**BROADBAND LOW NOISE AMPLIFIERS:**
0.001-110GHz (Octave and Multi-Octave) With Noise Figure As Low As 2db.
0.1-2GHz; 0.1-12GHz; 0.1-20GHz; 0.1-40GHz; 0.1-50GHz; 0.1-60GHz; 0.1-78GHz; 2-4GHz; 2-8GHz; 2-20GHz;
2-26.5GHz; 3.7-12GHz; 5-15GHz; 6-18GHz; 18-26.5GHz; 18-40GHz;
26.5-40GHz; 57-65GHz; 85-97GHz. ; 75-110GHz.

**BROADBAND MEDIUM POWER AMPLIFIERS:**
0.001-110GHz (Octave and Multi-Octave) With Output Power Up To 30dBm.
0.5-2GHz; 0.5-4GHz; 0.5-6GHz; 0.5-8GHz; 0.5-10GHz; 0.5-12GHz;
0.5-14GHz; 0.5-20GHz; 2-4GHz; 2-8GHz; 2-20GHz; 2-50GHz; 3.7-12GHz;
5-15GHz; 6-18GHz; 18-26.5GHz; 18-40GHz; 26.5-40GHz; 40GHz-60GHz;
90-97GHz. ; 75-110GHz.

**BROADBAND HIGH POWER AMPLIFIERS:**
0.001-50GHz (Octave and Multi-Octave) With Output Power Up To 53dBm.
0.5-2GHz; 2-4GHz; 2-8GHz; 4-8GHz; 6-18GHz; 3.7-12GHz; 5-
15GHz; 8-12GHz; 12-18GHz; 18-20GHz; 18-26.5GHz; 26.5-
40GHz; 40-50GHz.

**NARROWBAND LOW NOISE AMPLIFIERS:**
0.001-110GHz With Noise Figure As Low As 0.25dB At L-Band, And
6dB At 110GHz.

**NARROWBAND MEDIUM POWER AMPLIFIERS:**
0.001-96GHz With Output Power Up To 33dBm.

**NARROWBAND HIGH POWER AMPLIFIERS:**
0.001-50GHz With Output Power Up To 2000W AT UHF&1000W At
L & C Band.

**LIMITING AMPLIFIERS:**
0.001-60GHz (Octave and Multi-Octave) With Medium And High Gain.
RACK MOUNT AMPLIFIERS (19 INCHES):

0.5-2GHz (10W - 50W); 0.8-2.5GHz (20W - 100W);
1-2GHz (20W - 200W); 2-4GHz (20W - 200W); 2-6GHz (10W - 100W);
2-8GHz (10W - 200W); 4-8GHz (20W - 200W);
8-12GHz (20W - 200W); 6-18GHz (10W - 100W); 18-26.5GHz (5W, 10W & 20W); 26.5-40GHz (2W, 4W, 5W, 10W & 20W).

DESK TOP AMPLIFIERS (12 INCHES):

LNA: 1-40GHz (4dB NF); 1-50GHz (5dB NF).

SSPA: 0.5-2GHz (5W); 0.8-2.5GHz (5W & 10W); 1-2GHz (5W & 10W);
2-4GHz (5W & 10W); 2-6GHz (5W); 2-8GHz (5W); 4-8GHz (10W);
8-12GHz (5W & 10W); 6-18GHz (2W, 4W & 5W); 18-26.5GHz (1W & 2W); 26.5-40GHz (1W & 2W).

DESK TOP CLOCK RECOVERY AMPLIFIER

DATA RATES: 10/20Gbs With ½ Clock Output 2.5Vp-p
With Full Clock Output 2Vp-p

40/43Gbs With ½ Clock Output 2Vp-p
With Full Clock Output 1.5Vp-p

DESK TOP MULTIPLIERS (12 INCHES):

INPUT FREQUENCY: 2.5GHz
OUTPUT FREQUENCIES: 5GHz; 10GHz; 20GHz & 40GHz.

DESK TOP PRESCALARS (12 INCHES):

INPUT FREQUENCY: 40GHZ @ 0dBm
OUTPUT FREQUENCIES: 20GHz, 10GHz & 5GHz @ 0dBm

SATCOM WAVEGUIDE LNAs:
AMPLIFIERS FOR OPTICAL FIBER COMMUNICATIONS:

Broadband Modulator Driver Amplifiers (NRZ) for Optical Fiber Communications Up To 40Gb/s With Output Voltage of 3-8 Vp-p.

30KHz-10GHz; 30KHz-12GHz; 30KHz-14GHz; 50KHz-18GHz; 50KHz-20GHz; 75KHz-45GHz; 75KHz-50GHz; 75KHz-65GHz; 75KHz-78GHz.

Driver Amplifiers (RZ) for Clock Recovery and Forward Error Correction Up To 100Gb/s With Output Voltage Up To 30 Vp-p.

20Gbs & 40Gbs Clock Recovery Amplifiers

FREQUENCY MULTIPLIERS UP TO 160GHz:

PASSIVE FREQUENCY MULTIPLIERS:

With Input Frequency As Low As 0.01GHz, And Output Frequency As High As 160GHz.

ACTIVE FREQUENCY MULTIPLIERS:

With Input Frequency As Low As 0.01GHz, And Output Frequency As High As 110GHz. Multiplication Factors From 2 to 64.

FREQUENCY DIVIDERS:

With Input Frequency As High As 40GHz, And Output Frequency As Low As 0.1GHz.
MIXERS & DETECTORS UP TO 220GHz:

SOURCES UP TO 160GHz:
Mechanically Tuned Gunn Oscillators, Varactor-Tuned Gunn Oscillators, DROs, VCOs, PLOs, Injection Locked Oscillators & Noise Sources.

CONTROL COMPONENTS UP TO 160GHz:
Direct Reading Precision Attenuators, Programmable Rotary Vane Attenuators, Uncalibrated Variable Attenuators, Dial-Driven Calibrated Attenuators, Micrometer-Driven Calibrated Attenuators, Variable PIN Attenuators.
Frequency Meters & Direct Reading Frequency Meters.

ATTENUATORS UP TO 160GHz

SWITCHES UP TO 160GHz
Mechanical Waveguide Switches, Electromechanical Waveguide Switches, PIN Switches (SP1T To SP16T, Full-band Switches).

FERRITE PRODUCTS UP TO 170GHz:
Fullband Junction Circulators And Isolators. (18-26.5GHz; 26.5-40GHz; 33-50GHz; 40-60GHz; 50-75GHz; 60-90GHz & 75-110GHz). High Power Isolators And Circulators, Coaxial And Drop-in Isolators And Circulators.

FILTERS & DIPLEXERS UP TO 160GHz:
BandPass Filters, Low Pass Filters, HighPass Filters & Notch Filters.

**CERNEX, Inc.**

**BIAS TEEs:**

Waveguide & Coaxial Bias Tees Up To 65Ghz.

**WAVEGUIDE & COAXIAL COUPLERS UP TO 160GHz:**

Directional & Bi-directional Couplers, Precision High Directivity Couplers, Crossguide Couplers, 3dB Hybrid 90 Degree And 180 Degree Couplers.

**POWER COMBINERS AND DIVIDERS UP TO 60GHz:**

Waveguide & Coaxial 2 To 24 Way Combiners/Dividers.

**WAVEGUIDE AND COAXIAL PHASE SHIFTERS:**

Direct Reading & Variable Phase Shifters.

**TERMINATIONS AND LOADS UP TO 160GHz:**


**TRANSITIONS / ADAPTERS:**

Low Loss Cosine & Linear Tapered Mode Transitions, Circular To Rectangular Waveguide Transitions, Waveguide To Coax Transitions, Coaxial Adapters (1mm, 1.8mm, 2.4mm, 3.5mm, SMA etc.. In Series And Between Series)

**WAVEGUIDE PRODUCTS UP TO 325GHz:**

DETECTORS:

Finline Detectors, Balance Phase Detectors & BroadBand Detectors.

ANTENNA PRODUCTS:

Horn Lens Antennas, Standard Gain Horn Antennas, Scalar & Wide Angle Scalar Feed Horn Antennas, Cassegrain Reflector Antennas, Prime Focus Antennas, Orthomode Transducers, Linear To Circular Fixed And Switchable Polarizers, Parabolic Grid Antennas, GPS Antennas & Flat Panel Antennas.

ASSEMBLIES AND SUBSYSTEMS:

Up/Down Converters, Sat-Com Up/Down Converters, Dual & Tri-Band Block Down Converters, Transmitters, Generic Transceivers & Antenna-Related Subsystems.

SYSTEMS PRODUCTS CAPABILITY:

Sensor Products, Communication Products, Remote Sensing Products, Surveillance And EW Products.

NOTES: PLEASE, CONTACT THE FACTORY FOR ALL YOUR OTHER SPECIAL REQUIREMENTS. WE ALSO HAVE PRODUCTS, WHICH ARE NOT YET MENTIONED IN THIS BROCHURE. DATASHEETS FOR EACH PRODUCT CAN BE DOWN LOADED FROM OUR WEBSITE.
Coaxial Tubular Products

DC-45GHz Var. Attenuator

DC-Block

CDMA Power Divider

Coaxial PIN Switches

Coaxial Loads

Connectors

Frequency Combiner

Gain Modules

Power Supply-Rack

WR6 Crossguide Coupler

WR15 Electro-Mech Switch

WCDMA Diplexer

Tapered Mode Transitions

Various Filter
X-band Receiver

KA-band Transceiver