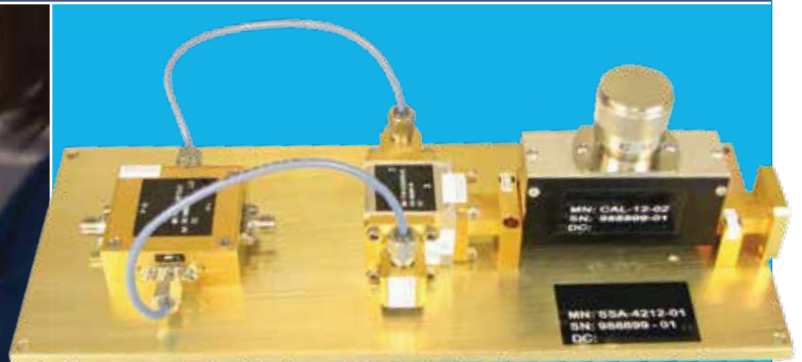


Test Equipment



Ducommun Test Equipment Overview

Ducommun offers a complete line of test equipment and instrumentation products needed for use in test laboratories or production testing environments. With over 125 years of combined design experience, our engineering team is well-suited to design and manufacture products from component level through complete integrated assemblies. Our products team has produced many high performance microwave and millimeter wave band test equipment for specific commercial, military, and research center laboratories.

Ducommun offers a complete range of test and measurement products covering the frequency range DC to 110 GHz, making them ideally suited for research and development facilities, production test equipment and industrial applications.

- Directional couplers
- Waveguide detectors
- Horn antennas
- Frequency extenders
- Circulators/isolators
- Attenuators
- Adapters and transitions
- Waveguides
- Electromechanical switches
- Coaxial switch matrices
- Integrated switch matrices
- Up and down converters

Applications

- Radar target simulator
- Single side band modulation
- Forward and backward moving object simulator
- Bench top test set
- Automatic test set
- Swept frequency sources
- Laboratory test
- Wafer probe station
- Receivers

Amplifiers

Ducommun offers low noise (ALN), high power (AHP), full waveguide band (AFB) and general purpose (AGP) amplifiers to cover the frequency range from 18 to 104 GHz. These amplifiers utilize thin-film and microelectronics manufacturing techniques and are discrete and/or MMIC PHEMT based devices. These amplifiers feature low noise, high output power, single DC power supply and wide operation temperature range.

The amplifiers are offered in two categories, standard and custom-built. Both standard and custom-built amplifiers are equipped with various RF interface, including standard waveguide or coaxial connector for convenient system integration. The optional input and output integrated isolators are available as an option to further improve the port return loss.

Up and Down Converters

Ducommun offers design and manufacturing of narrow and wide band frequency converters from K-band through W-band converters. These up and down converters are ideal for test and measurement, communications systems and as transmitters/receivers where frequency conversion is required.

Passive Components

Ducommun has various passive components including standard and custom design multi-hole directional couplers (PCM), crossguide couplers (PCC), magic tees (PCT), coax power dividers (PPD), bandpass, low pass and high pass filters (PFB, PFL and PFH), waveguide diplexers (PDC), waveguide transitions (PRC and PTW), waveguide to coax adapters (PTC) and waveguide components (PWS, PWE, PWH, PWM and PWT). These passive components cover frequency range from 8.2 to 110 GHz and feature high performance and low cost. The PTC, CAL and CAF series can be ordered online and shipped from our in-stock inventory within 24 hours of purchasing. For additional information regarding our in-stock products, please visit www.ducommun.com.



Instrument Grade Products

- Waveguide to coax adapters (PTC series)
- Level setting attenuators (CAL series)
- Fixed attenuators (CAF series)
- Bend, twists and transitions
- Directional couplers (PCM series)

Scalar Network Analyzer Extenders (SNA Series)

Ducommun's SNA series scalar network extenders combine higher performance amplifiers, passive or active multipliers, filters, Faraday isolators, direct reading attenuators, high directivity couplers and high sensitive detectors to extend the low frequency scalar network analyzers, such as HP 8756A or HP8757A to low cost mmW scalar network analyzers.

Features

- High output power
- Full waveguide bandwidth
- Extends MW SNA to mmW bands
- Output frequencies up to 110 GHz

Radar Target Simulators (SSA)

Ducommun's SSA series radar target simulator is a single side band (SSB) modulator, which can simulate the moving radar target for Doppler radar system testing. The simulator can eliminate expensive and time consuming field test for most Doppler/speed radar manufacturers. The modulators are available in major Doppler radar frequency bands such as K-, Ka-, V-, and W-band.

Features

- Low routing loss
- High image rejection
- Separate I/Q input ports
- Low harmonic and spurious emission
- Circular or rectangular waveguide interface

Frequency Extenders (SFE Series)

Ducommun’s SFE series frequency extenders combine high performance mmW amplifiers, passive or active multpliers and filters to extend the low frequency sweepers, such as HP 83550B or Agilent 83751B, to extremely clean and low cost mmW sources.

Features

- High output power
- Full waveguide bandwidth
- Extends MW frequencies to mmW bands
- Output frequencies up to 110 GHz

Noise Figure and Gain Test Set (SNG Series)

Ducommun’s SNG series of noise figure and gain test sets are configured to provide automatic noise and gain measurement of amplifiers or receivers in the frequency range of 26.5 to 140 GHz in seven overlapping waveguide bands. The standard models have SMA coaxial connectors for the LO input and IF output ports of the down converters with a standard waveguide for DUT RF input port.

Features

- Full waveguide bandwidth operation
- Compatible with various noise figure meters
- Swept measurement capacity
- Solid-state noise sources offered
- Compact and rugged package



Switch Matrix



Microwave Components and Integrated Assemblies

Ducommun has an extensive history and fundamental knowledge of electromechanical coaxial switches and combines them into the system with its ability to integrate products into a workable solution and design to meet customer’s unique requirements. From a simple SPST coaxial switch to a fully integrated switching solution, Ducommun has the technical expertise that is equal to the challenge. Below is a list of custom configuration options available:

Frequency range	DC to 46 GHz
Voltage	5, 12, 15, 28, 48 (Vdc)
Failsafe	Diodes/Indicators
Latching	Pulse/Self Cut Off
Normally open	Diodes/Indicators
TTL	High/Low
DC power	Solder terminals/D-Sub or Circular connector

Ducommun is a key supplier of microwave and millimeter wave components and subassemblies to our customers throughout the world. Ducommun has been making RF products since 1969, first as Dynatech (DMT) and then expanding our product offering with the acquisitions of DBP Microwave and WiseWave Technologies.

Along with our DC to 46GHz switches, we manufacture switch matrices, pin diode switches, switched filter banks, mixers, up & down converters, multipliers, Doppler & ranging radars. We also manufacture many passive components such as filters, diplexers, WG transitions, flanges, bulkhead adapters and WG to coax adapters.

We have designs for commercial aircraft, military aircraft, defense, industrial, medical, SATCOM, telecommunications and test and measurement applications.

At Ducommun, our vision is to be our customers' #1 provider of innovative electronics and structures solutions.

- Honesty
- Professionalism
- Respect
- Trust
- Teamwork

Honesty • Professionalism • Respect • Trust • Teamwork



**Ducommun
Incorporated
Headquarters**



- St. Louis, Missouri *

CIRCUIT BOARD SOLUTIONS

- Appleton, Wisconsin
- Tulsa, Oklahoma

INTERCONNECT SOLUTIONS

- Joplin, Missouri
- Berryville, Arkansas

AEROSPACE INTEGRATED SOLUTIONS

- Phoenix, Arizona
- Huntsville, Arkansas

INDUSTRIAL INTEGRATED SOLUTIONS

- Pittsburgh, Pennsylvania
- Houston, Texas
- Tulsa, Oklahoma

- Huntsville, Alabama *
- Oxford, Mississippi
- Iuka, Mississippi

ENGINEERED SOLUTIONS

- Carson, California

STRUCTURAL ASSEMBLY SOLUTIONS

- Parsons, Kansas
- Coxsackie, New York

STRUCTURAL SYSTEMS SOLUTIONS

- Gardena, California *
- Orange, California
- El Mirage, California

BONDED COMPONENT SOLUTIONS

- Monrovia, California