

# Switch Matrices



## Technical Expertise

Ducommun builds on its extensive history and fundamental knowledge of electromechanical coaxial switches, combining 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 technical expertise that is equal to the challenge.

## Typical Applications

- ATE testing
- Switching between communication links
- Data acquisition
- Signal path control
- Satellite control stations

## Switch Matrix Capabilities

Ducommun has been actively working with customers to develop unique testing solutions using our switch matrices and coaxial switches. Ducommun has over 25 years experience with the design and manufacturing of switch matrix systems. Combining our technical knowledge of both coaxial switches and switching systems, we have been able to assist our customers with a variety of solutions that fit their unique requirements. Ducommun offers a complete, fully supported, turnkey solution that allows our customers to have the benefit of a customized solution at a fraction of the price.

Ducommun provides technical assistance to our customers to help them create the best test matrix for their unique application. Our engineering team will work with individual customers to help define the system specifications; design the system and propose this to each customer; and deliver the final switching system in a time sensitive schedule.

To begin this process, contact a Ducommun local representative or a factory representative, or visit [Ducommun.com](http://Ducommun.com) to find our Switch Matrix Questionnaire.

## Benefits

- Expandable system for future growth
- Reduced touch labor
- Short lead time (typical)

## Features

- Modular design
- Customizable
- USB controlled switches
- Available with either 50 or 75 ohm



## Examples of Our Matrix Configurations

As Ducommun continues to provide customers with custom switch matrix configuration, listed below are a few examples of model numbers, as well as standard and custom configuration specifications.

## Standard Specifications

- AC supply: 100-240 VAC
- Control: Ethernet/GPIB
- Frequency range options: DC to 46 GHz

Model Number	C322U4x4-01
Configuration	4 Input SMA 4 Output SMA
Frequency	DC to 18 GHz
Size	2U
VSWR	1.7 : 1 Max
Insertion Loss	3 dB Max
Isolation	80 dB Min

Model Number	C32U1x16-01
Configuration	16 Input SMA 1 Output SMA SP16T RF Switch (16x1)
Size	2U
VSWR	1.6 : 1 Max
Insertion Loss	1.5 dB Max
Isolation	60 dB Min

**Model Number** C32U12x2-01

**Configuration** 12 Input SMA  
2 Output SMA  
Non Blocking (12 x 2 Crossbar)

**Size** 2U

**Insertion Loss** 3 dB Max  
**Isolation** 60 dB Min

**Model Number** C322U1x1-01

**Configuration** 16 Input (N)  
1 Output (N)  
RF Switch Filter Bank (16 channel)

**Frequency Range** 2 to 18 GHz

**Size** 4U

**Insertion Loss** 7 dB Typ.  
**Isolation** >80 dB channel to channel

**Model Number** C326U2x4x4-01

**Configuration** 2x4 Input SMA  
4 Output SMA  
Non Blocking (4 x 4 Crossbar)

**Size** 6U

**VSWR** 1.6 : 1 Max  
**Insertion Loss** 1.5 dB Max  
**Isolation** 60 dB Min



C32U12x2-01



C322U1x1-01



C326U2x4x4-01



C322U4x4-01

## Cross-Path Options

Ducommun's switch matrix systems utilize a significant number of discrete components, including our own coaxial and pin diode switches, in a modular configuration. We are currently offering the following cross-path options:

- Crossbar– One path exists between the input and output path
- Fan Out– Divides the input signal into a multiple path array
- Fan In– Combines multiple inputs into a single output path

## Communications / Control Protocols

Ducommun can provide our switch matrices with different communication/control protocols. These include;

- Labview based drivers
- GPIB
- RS-232/Ethernet (TCP/IP)
- USB



## About Ducommun

Ducommun is a key supplier of microwave and millimeter wave components and sub-assemblies 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 switch matrix products, we manufacture coaxial switches, 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 & measurement applications.

## Our Locations

