CYTEC CORP.

BULLETIN
TX-1

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TX SERIES

THREE STAGE MATRIX SWITCHING SYSTEMS

CYTEC's TX Series Three Stage Matrix Switching System is completely non-blocking, full fan-out configurations from 16x16 to 128x128, with a bandpass to 140 MHz. The system can handle a wide variety of 50 and 75 ohm signals. Control options include RS232, IEEE488, LAN or LCD Keypad Manual Control.

TX/128X128 CHASSIS

The TX/128x128 Three Stage Matrix Mainframe is capable of being expanded from a 16x16 to a 128x128 by adding the desired number of input and output modules. The TX Series Matrix is completely non-blocking (all inputs can be connected to all outputs simultaneously) and full fan-out (any one input may be connected to any or all outputs without degrading the signal).

TX/128x128 MAINFRAME

The TX/128x128 standard 19" rack mounting units are built with power supplies, a Control Module and optional LCD Display Manual Control. The system is completely modular by adding the desired number of Input and Output Switch Modules.

TX/128x128-E EXPANSION CHASSIS

The expansion chassis is identical to the mainframe in size and function. The expansion chassis, however, is built without a dedicated control module, manual control or power supplies. Instead, it is designed to be both powered and controlled by one of CYTEC's MESA Control Chassis detailed in the **MESA Bulletin**. Ribbon Expansion Cables connect the expansion chassis to the MESA.

CUSTOM CHASSIS

Custom configurations are available upon request. Most custom systems wire out the rear panel Input/Output connections to a required connector type that is different from the standard SMB female connectors. This wiring is priced on the basis of labor and materials.

WARRANTY

CYTEC Corp. warrants that all products are free from defects in Material or Workmanship for a period of 5 years and that all switches are guaranteed for their rated operations as shown on the second page.

TX/64x64 Mainframe Rear View

CONTROL MODULES

IF-5 IEEE488/RS232 CONTROL MODULE

This module provides remote control via both RS232 Serial and IEEE488 Talk/Listen interfaces as detailed in Applications Bulletin AP-5.

IF-6 LAN INTERFACE

This optional module allows control over a 10BaseT Ethernet Local Area Network via TCP/IP protocols as described in Applications Bulletin AP-5.

MANUAL CONTROL

MC-2 WITH LCD DISPLAY

This local control supplies a front panel Keypad and LCD Display that lets the operator control any switch and verify switch status.

VMCS

This Virtual Manual Control Software allows a remote operator using a PC to view matrix Status and control switches using a full Graphical User Interface.

CONTACT 1-800-346-3117 OR WWW.CYTEC-ATE.COM FOR TECHNICAL ASSISTANCE

SPECIFICATIONS AND BUFFER OPTIONS

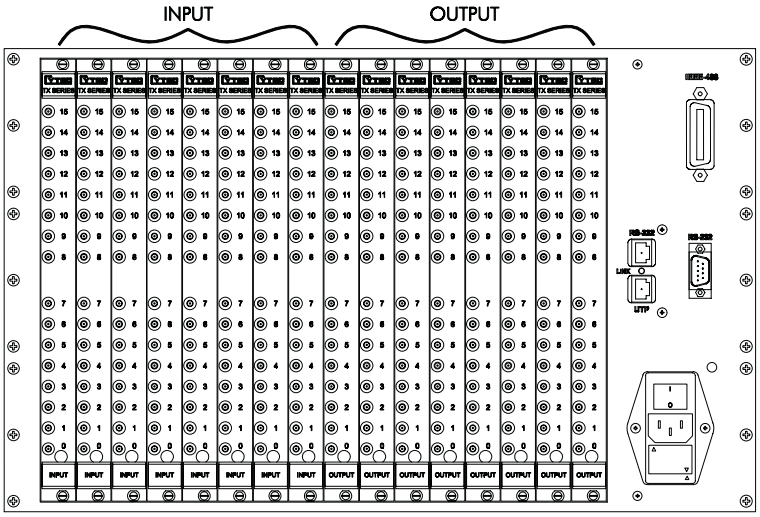

Fig. 2

TX/128x128 Mainframe Rear View with IEEE488, RS232 and LAN Control

TX SERIES MATRIX

The TX Series is intended to switch small signal levels in a non-blocking (any input to any output), full fan out (any input to any or all outputs) configurations. For a 128x128 non blocking three stage matrix mainly consist of an input, center and output stage. Each Input stage is a 8x16 matrix. Sixteen input stages gives you 16x8 = 128 input connectors. Each Center stage is a 16x16 Matrix. There are 16 intermediate stages. Each Output stage is a 16x8 Matrix. Sixteen outputs give you a 16x8 =128 output connectors.

TX SPECIFICATIONS (signal w/o buffers)

Characteristic Impedance:	75 Ohms
Small Signal Bandpass (±0.1 V)	140 MHz (-3dB)
Large Signal Bandpass (±1.0 V)	80 MHz (-3dB)
Crosstalk: non adjacent path	-75 dB @ 20 MHz
adjacent path	-47 dB @ 10 MHz
Input/ Output Isolation:	-80 dB @ 10 MHz
Switching Speed:	50 ns + Control Interface Delay

CONNECTIONS

Signal Connections:	SMB, Patch panels normally provided to convert SMB to BNC, SMA or customer specified connector.
AC Input:	Universal, US Standard AC
RS232:	D9 Male
GPIB:	IEEE488
10BaseT LAN:	RJ45
LAN to RS232:	RJ45

POWER

AC Input	Selectable 110 /220 Volt Input. 100 to 130 VAC / 200 to 240 VAC 110 VAC fused @ 3 amps 220 VAC fused @ 2 amps 50 to 60 Hz.
Consumption	200 Watts, 128x128 with ±4V buffers
DC Supply Type	Low Noise Linear

GENERAL SPECIFICATIONS

Dimensions	19" Rack Mount 10.5" tall (6U) and 20.5" deep
Weight	25 lbs +.7 lbs per input /output module Full 128x128 =36.2 lbs (16.5 Kg)
Operating Temperature	0° to 70° C
Storage Temperature	-25° to 80° C
Humidity	95% RH noncondensing to 30° C

INPUT and OUTPUT BUFFERS

Optional Buffers are available for all Input and/or Output Channels. These buffers serve up to three different purposes:

1) They transform impedances to allow the solid state switch fabric to be used for systems with other than 75 ohms characteristic impedance.

2) Input Buffers can be used to reduce signals to levels where they can be safely switched by the matrix.

3) Output Buffers can have preset gains to boost signals to required voltages.

A typical buffer is shown schematically in **Fig. 3**. Resistors **Rs** and **Ri** set the input impedance and also attenuate the input signal (if needed), while **Rout** determines the output impedance. The circuit is typically built with one of several standard small signal Op Amps, but custom amplifiers are also possible. The specifications for a typical small signal amplifier are shown below.

TX SPECIFICATIONS (signal with buffers)

Characteristic Impedance:	50 or 75 Ohms
Small Signal Bandpass (±1.0 V)	140 MHz (±1.5dB)
Large Signal Bandpass (±4.0 V)	75 MHz (-3dB)
Crosstalk: non adjacent path	-75 dB @ 20 MHz
adjacent path	-47 dB @ 10 MHz
Input/ Output Isolation:	-80 dB @ 10 MHz
Switching Speed:	50 ns + Control Interface Delay

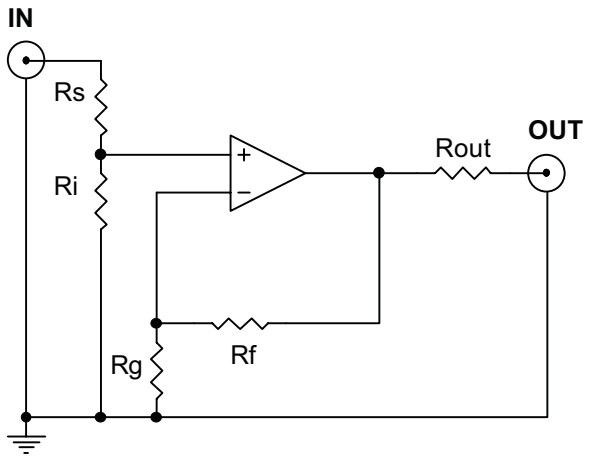

Fig. 3

Input or Output Buffer