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.

CONTACT 1-800-346-3117 OR WWW.CYTEC-ATE.COM FOR TECHNICAL ASSISTANCE
SPECIFICATIONS AND BUFFER OPTIONS

**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

**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)**

<table>
<thead>
<tr>
<th>Characteristic Impedance:</th>
<th>75 Ohms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Signal Bandpass (±0.1 V)</td>
<td>140 MHz (-3dB)</td>
</tr>
<tr>
<td>Large Signal Bandpass (±1.0 V)</td>
<td>80 MHz (-3dB)</td>
</tr>
<tr>
<td>Crosstalk: non adjacent path adjacent path</td>
<td>-75 dB @ 20 MHz</td>
</tr>
</tbody>
</table>

**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)**

<table>
<thead>
<tr>
<th>Characteristic Impedance:</th>
<th>50 or 75 Ohms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Signal Bandpass (±1.0 V)</td>
<td>140 MHz (±1.5dB)</td>
</tr>
<tr>
<td>Large Signal Bandpass (±4.0 V)</td>
<td>75 MHz (-3dB)</td>
</tr>
<tr>
<td>Crosstalk: non adjacent path adjacent path</td>
<td>-75 dB @ 20 MHz</td>
</tr>
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**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

**Rout**

Input or Output Buffer