2555 Baird Road, Penfield, New York 14526 (585) 381-4740 sales@cytec-ate.com

DX/256x256 SERIES

SOLID STATE DIGITAL SWITCHING SYSTEMS

CYTEC's DX/256x256 Series Switching Systems are based on a solid state switch fabric. The Standard DX system is designed to switch:

- **Differential RS422 to 25 Mbps**
- **75 ohm TTL to 50 Mbps with input and output protection (see page 3).**
- **TTL, CMOS, LVTTL, and RS232.**
- **Non-blocking and full fan-out means any input to any or all outputs.**
- **Configurations from 64x64 up to 256x256 or Dual 32x32 to 128x128 (Clock and Data).**
- **Control options include LAN, RS232, GPIB or USB and optional Manual Keypad.**

DX/256X256 CHASSIS

The DX/256X256 Series are 19" rack mounting units and are built as either Mainframe or Expansion Chassis. The Solid State Digital Matrix is modular, capable of being expanded from a 64x64 to a 256x256 by adding the desired number of input and output modules. The configurations occur in 64 channel increments so typical configurations will be 64x448, 128x384, 256x256, etc. Other possible configurations such as dual 128x128 clock and data matrices or multi chassis clock and data systems.

DX/256X256 MAINFRAME

The Standard Mainframes are built with power supplies, user specified Control Module and optionally Keypad LCD Display Manual Control. The system is completely modular by adding the desired number of DX/64 Input and Output Switch Modules defined on pages 2 and 3 of the bulletin.

DX/256x256-E EXPANSION CHASSIS

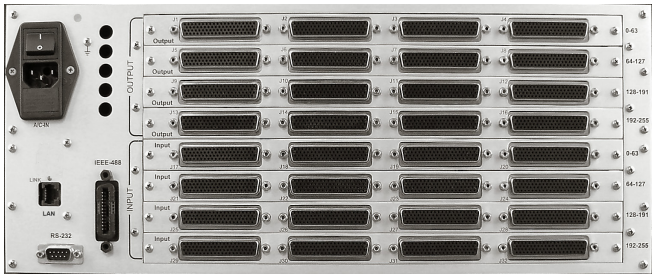
The expansion chassis is identical to the mainframe in size and function. The expansion chassis, however, uses a separte control chassis that allows multiple chassis to be driven in unison. This allows you to build even bigger configurations such as 512x512 Clock and Data systems if needed.

CUSTOM CHASSIS

Custom configurations are available with options susch as redundant control modules, redundant power supplies or custom interface panels.

PATCH PANELS

Standard Patch Panels are available to convert D connectors to BNC, SMA, Triax or other common connectors if needed.



DX/256x256 Mainframe Rear View (Standard 422 Matrix)

CONTROL MODULES

IF-11 LAN/IEEE488/RS232 CONTROL MODULE

This module provides the following remote control ports:

- 10/100BaseT Ethernet LAN with 2 ports plus telnet.
- RS232 Serial or USB Adaptor.
- IEEE488 Talk/Listen interface (GPIB).

MANUAL CONTROL

MC-2 WITH LCD DISPLAY

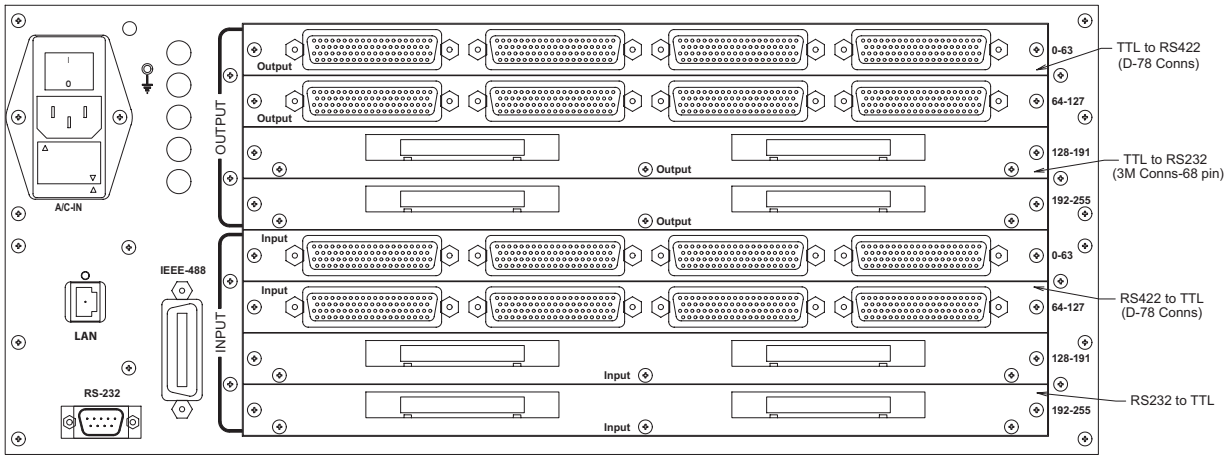
This local control supplies a front panel Keypad and LCD Display that lets the operator control any switch and verify switch status.

Software Support

- Free Virtual Manual Control Open Source GUI.
- Example code in C, Java, Python, TCL, etc.
- Generic Drivers for National Instruments LabView*.
- Matlab* code, Keysight VEE* code.

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

SPECIFICATIONS AND BUFFER OPTIONS



Combination 128x128 RS422 plus 128x128 RS232 Matrix

DX/256x256 SERIES MATRIX

The DX Series is intended to switch almost any digital stream data stream in a nonblocking (any input to any output without disturbing previously set paths), full fan out (any one input to any or all outputs) configurations. The Basic system is intended to switch TTL or CMOS signal levels.

When used without buffer modules, the system conforms to all TTL/ LVTTL specifications below

DX SPECIFICATIONS (signal w/o buffers)

Input Voltage High (VIH) :	2.1V Min	5.25V Max
Input Voltage Low (VIL)	-0.3V Min	0.8V Max
Output Voltage High (VOH)	2.4V Min	3.7V Max
Output Voltage Low (VOL)	---------	0.4V Max
Data Rate	---------	80Mb/s Max
Output Current	---------	8 mA Max

CONNECTIONS

Signal Connections:

Standard 68 pin male header or 78 pin female D connectors. Patch panels can be provided to convert 68 pin male header or 78 pin female "D" to BNC, SMA, Triax or customer specified connector.

AC Input:	Universal 90 to 240 VAC
RS232:	D9 Male
GPIB:	IEEE488
10/100BaseT LAN:	RJ45

GENERAL SPECIFICATIONS

Dimensions - 19" rack mount, 7" (4U) high and 20" deep
Weight - <45 lbs (20.41 Kg)
AC Input -100 to 130 VAC or 200 to 260 VAC, 47/63 Hz,
Operationg Temperature - 0 to 50 ºC
Storage Temperatures - -25 to 65 ºC
Switching Speed - 50 ns + Control Interface Delay
Humidity - 95% RH noncondensing to 30º C

INPUT and OUTPUT BUFFERS

Optional Input and/or output buffer modules convert the system to RS-422, 75 Ohm TTL and/or RS-232 levels. Each buffer module has sixty-four (64) channels so a fully buffered 256x256 system has four input buffers and four output buffers. When these modules are used, the specifications of the system are determined by the input and/ or output buffers present.

The RS-422 input and output buffer modules have two options for connectors, 68 pin male header or 78 pin female "D" connector.

DX SPECIFICATIONS (signal with buffers)

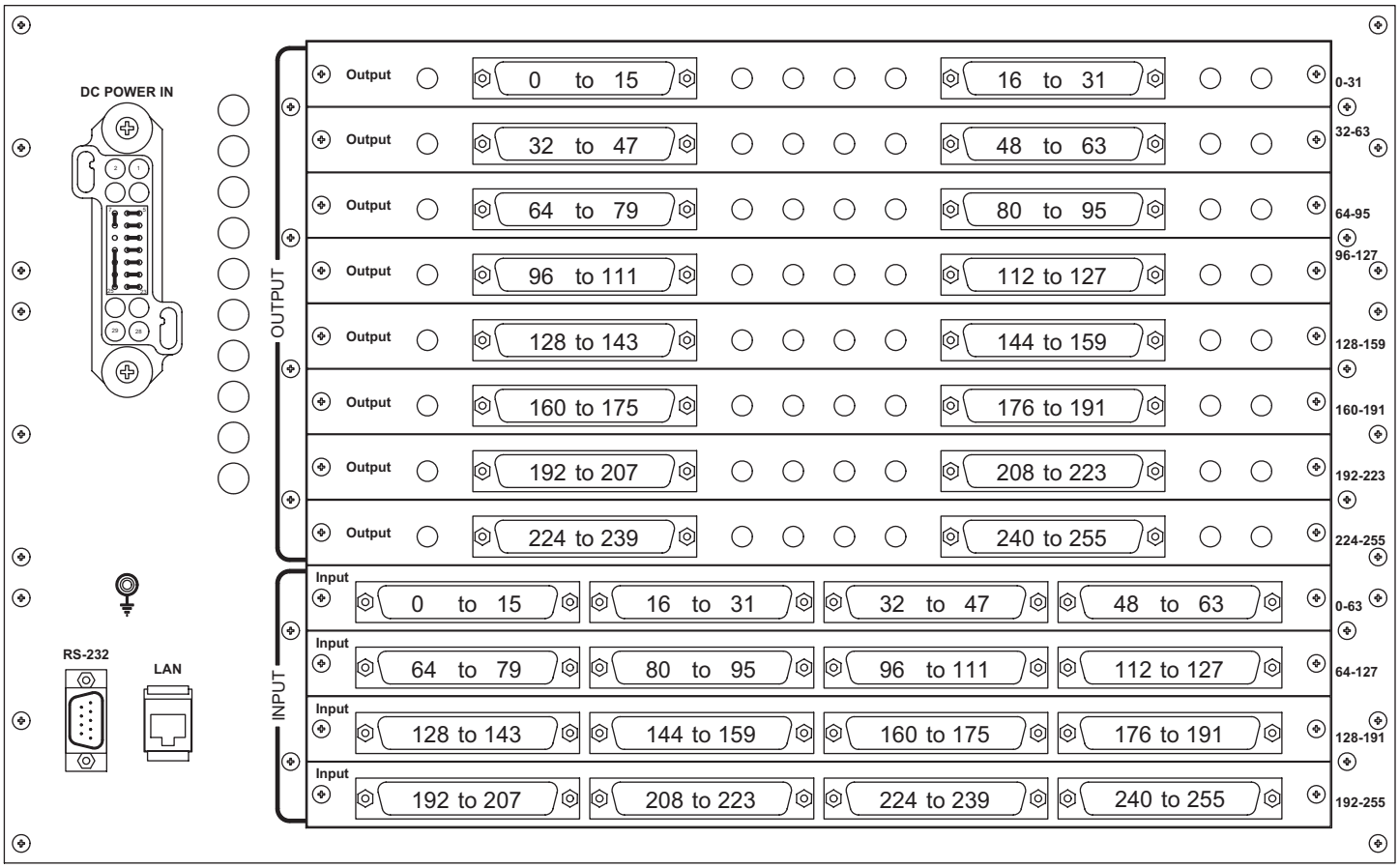
RS-422 Input Buffer Characteristic:	
Common Mode Input Voltage (Vcm)	-7V<Vcm<+7V
Differential Voltage Swing	200 mV Min
Input Resistance	6.8 KOhm Typical
Data Rate	20 Mb/s Max
RS-422 Output Buffer Characteristic:	
Common Mode Output Voltage	1.8V Typical
Output Voltage High (VOH)	2.5V Min /3.4V Max
Output Voltage Low (VOL)	.3V Typical /.5V Max
Data Rate	20 Mb/s Max
Output Current	150 mA Max
RS-232 Input Buffer Characteristic:	
Input Voltage Range	-25V Min /+25V Max
Input Voltage High (VIH)	2.17V Min
Input Voltage Low (VIL)	1.06V Max
Data Rate	200 kb/s Typical
Input Resistance	5.0k Ohms Typical
RS-232 Output Buffer Characteristic :	
Output Voltage High (VOH)	+5V Min /+8V Max
Output voltage Low (VOL)	-8V Typical /-5V Max
Data Rate	120 kb/s Typical
= Output Current	±10mA Typical

WARRANTY

CYTEC Corp. warrants that all products are free from defects in Material or Workmanship for a period of five years

CONTACT 1-800-346-3117 or sales@cytec-ate.com
FOR TECHNICAL ASSISTANCE

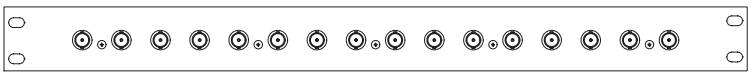
75 Ohm TTL Systems



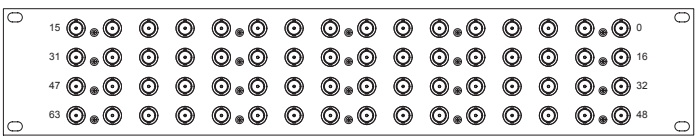
Cytec makes a special version of this system for 75 ohm TTL signals. Applications include military and aerospace radar, video, PCM signals and any other systems using 75 ohm TTL levels. Features Include:

- 75 ohm TTL Data rates to 80 Mbps NRZ.
- Input overvoltage protection to +/- 15 volts.
- Output short circuit protection.
- 75 ohm output drivers capable of running full TTL levels down 200' of coax cable.
- Separate controller option with redundant control modules.
- Rack Mount power supply with redundant, hot swap power supply modules.
- 75 ohm BNC Patch Panels
- Completely non-blocking and full fan-out. Any input to any or all outputs.

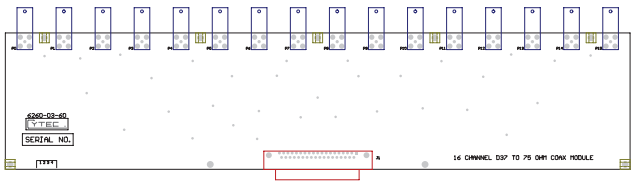
This system uses 64 channel Input buffer Modules and 32 channel output buffer modules with D78 connectors.



D78 to 16 Channel 75 ohm BNC patch panels are availabel for interfacing to standard 75 ohm coax cables.



32 channel BNC patch panel (2 RU)



16 channel D78 to 75 ohm BNC patch panel module

75 Ohm TTL System Specifications

Input Buffer Specifications:

TTL Low	0.8 V Max
TTL High	2.0 V Min
Maximum Input without damage	+15 V not continuous for long duration. +8.5 V continuous long term. -15 V not continuous for long duration.

Output Buffer Specifications:

Output Buffer Specifications:	At Patch Panel	After 200' Cable
TTL High	+ 4.8V*	+ 4.4V*
TTL Low	200 mV*	500 mV*
Maximum output current	133 mA	133 mA
Maximum output voltage	5.2 V*	5.2 V*
Maximum Output frequency	40 MHz (80 Mbps NRZ)	35 MHz (70 Mbps NRZ)
Rise time into 75 ohm load	2.65 nS	7.0 nS

* 75 Ohm load to ground

Chassis Specifications:

Dimensions	19" Rack Mount, 20" deep, 10.5" high (6 RU)
Weight	< 40 lbs
Power Consumption	Up to 200 Watts (approximately 0.78 watts per output max)
AC Input	-100 to 130 VAC or 200 to 260 VAC, 47/63 Hz,
Operationg Temperature	- 0 to 50 ºC
Storage Temperatures	-25 to 65 ºC
Switching Speed	50 ns + Control Interface Delay
Humidity	95% RH noncondensing to 30º C

Options:

- **Front Panel Keypad Manual Control with LCD Display.**
- **Separate Controller with Redundant Control Modules.**
- **Rack Mount redundant power supply chassis with hot swappable redundant supplies.**
- **Remote Power Supply Monitor features.**

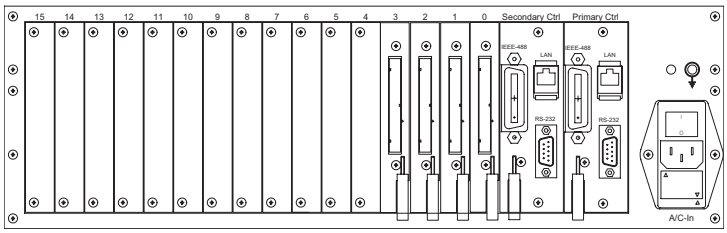
FOR TECHNICAL ASSISTANCE CONTACT
1-800-346-3117 OR 1-585-381-4740
CYTEC-ATE.COM
sales@cytec-ate.com

CYTEC 2555 Baird Road, Penfield, New York 14526 (585) 381-4740 sales@cytec-ate.com

Options (all systems):

MESA II Modular Controllers

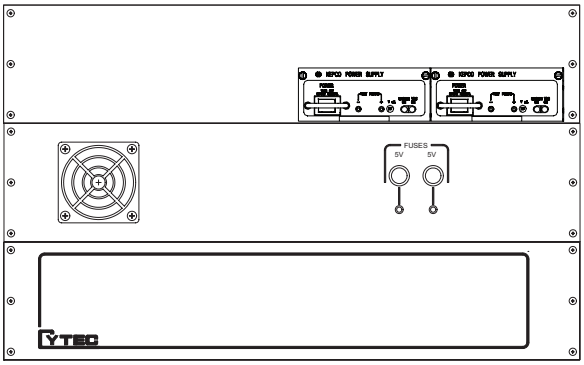
These controllers allow you to run multiple DX/256x256 Expansion Chassis from a single point of control and provides the following benefits:



- Configuration of multiple chassis larger than 128x128, driven in parallel for Clock and Data systems.
- Allows for modular redundant control modules to increase MTBF and decrease MTTR.
- Allows for power supply status remote monitoring.
- Provides a single point of control for multiple chassis.
- CM-8 Interface allows IEEE488, RS232 and 100BaseT Ethernet LAN with two TCP/IP ports.

Hot Swap Power Supply Option

Chassis can be provided with hot swap, redundant power supplies for single chassis mainframes (TTL, 422) or separate 19" rack mount modular power supplies for 75 ohm TTL systems and large configurations. Supplies are diode isolated to share the load unless one supply fails. Failure results in an alert LED or can be setup to trigger an alarm. Power supply status monitor option for the Mesa control chassis allows you to remote monitor the supply status.



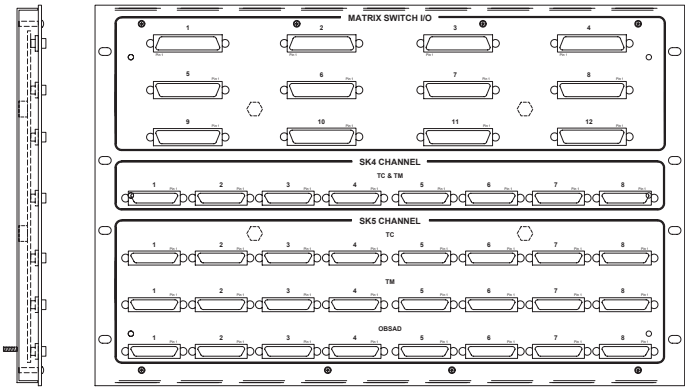
Mainframe with hot swap supplies

Separate Rack Mount Supplies for 75 ohm systems or large configurations

Buffer Options

Custom Buffer Modules can be built to switch any type of serial data below 80 Mbps NRZ. E-mail or call us with your specs for a quote on custom buffer modules.

Custom Patch Panels



Cytec can produce custom patch panels with almost any type of connector to interface between your cables and the connectors on our buffer modules. Call or e-mail your specs for details.

Model 5215 Patch Panel converts D78 connectors to D25 connectors with a specific pin-out for RS422 Clock and Data Pairs.

Software:

- **Download Cytec's Open Source VMC Software for VB.net from our cytec-ate.com/support webpage**
- **Drivers available for National Instruments LabView or LabWindows Software**
- **Example Programs for MathWorks Matlab environment.**
- **Example programs available in C, Java, Python or almost any other language you need.**

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