

PX/512 SWITCH MATRIX

The PX/512 Series of Switching Matrices are compact and economically priced units using high reliability Reed Relay Modules assembled into pre-wired Mainframes or Expansion Chassis to assemble a 32x16 Matrix, two 32x8 Matrices or a 64x8 Matrix with either single or two pole signal switching. Computer Control can be from IEEE488 BUS, RS232 Serial or 10Base-T LAN.

SPECIAL FEATURES:

- Matrix layout for high bandpass of 20 MHz and crosstalk less than -40 dB at 10 MHz.
- Status Feedback to the computer from the relay coil drive gives positive assurance that selected relay is energized.
- Interrogation Mode gives readout of all switched paths in terms of inputs and outputs connected.
- Optional Manual Control with visual display of selected switch path.
- Optional nonvolatile Ram for storage of preset or power-up configuration.
- VMCS Virtual Manual Control Software for Remote operation using a full Graphical User Interface.



SWITCH MATRIX UNITS

The units are all 19" rack mounted Chassis, 3.5" high, pre-wired to accept up to 16 of the PX/32 Switch Modules and a Control Module. Signal inputs and outputs are available with either coaxial BNC receptacles (-N), Header type connectors (-H) or screw terminals (-S).

MAINFRAMES

These are stand alone pre-wired chassis with low noise power supplies and motherboards to accept 16 Switch Modules and a Control Module.

There are two basic series of Mainframes:

PX/512-1 MAINFRAMES

These are 16" deep chassis pre-wired for single pole switching matrices.

PX/512-1A has a pre-wired motherboard accepting 16 of the PX/2x16-1 Switch Modules in a 32x16 Switch matrix configuration.

PX/512-1B has a pre-wired motherboard accepting 16 of the PX/2(2x8)-1 Switch Modules in two separate 32x8 matrices which can be combined as one 64x8 matrix.

PX/512-2 MAINFRAMES

These are 21" deep chassis pre-wired for two pole switching matrices.

PX/512-2A has pre-wired motherboards accepting 16 of the PX/2x16-2 Switch Modules in a 32x16 matrix configuration.

PX/512-2B has pre-wired motherboards accepting 16 of the PX/2(2x8)-2 Switch Modules in two separate 32x8 matrices which can be combined as one 64x8 matrix.

EXPANSION CHASSIS

These units are pre-wired to accept 16 Switch Modules and an Expansion Interface Module so that several chassis can be controlled and receive power from one MESA Control Unit as shown in the MESA Bulletin.

These Expansion Chassis are available in the same matrix configurations as the Mainframes.

PX/512-E-1 EXPANSION CHASSIS

These are 16" deep chassis accepting single pole switch modules.

PX/512-E-1A has a 32x16 matrix configuration.

PX/512-E-1B has two 32x8 matrices which can be combined as one 64x8 matrix.

PX/512-E-2 EXPANSION CHASSIS

These are 21" deep chassis accepting two pole switch modules.

PX/512-E-2A has a 32x16 matrix configuration.

PX/512-E-2B has two 32x8 matrices which can be combined as one 64x8 matrix.

CUSTOM CHASSIS

The Mainframes and Expansion Chassis can be supplied wired out to customer specified connectors or in special configurations.

PX/32 SWITCH MODULES

Each switch module has 32 single or two pole relays and includes the logic for Selecting the module, Selecting and Latching the relay and obtaining the Status of the relay. Status is obtained by checking the drive to the relays which verifies that the logic is operating correctly and that the selected relay is energized.

SINGLE POLE SWITCH MODULES

These Modules are available as either 2x16 Matrices or two 2x8 Matrices and with either Type S dry reed relays or Type M mercury wetted reed relays.

The inputs to the modules can be either BNC connectors(-N), screw terminals(-S) or 16 pin header (-H) for signal and shield, and the shield is carried through the module for maximum signal isolation.

The module outputs go to the 50 pin card edge connector which plugs into the motherboard bussing the modules into the matrix configuration.

PX/2x16-1 SWITCH MODULE

This is a 2x16 Switch Module shown in Fig. 1 with two input connectors and 16 outputs on the card edge connector.

Sixteen of these modules can be assembled in the PX/512-1A Chassis to make a 32x16 Matrix as shown in the single pole version of Fig. 5.

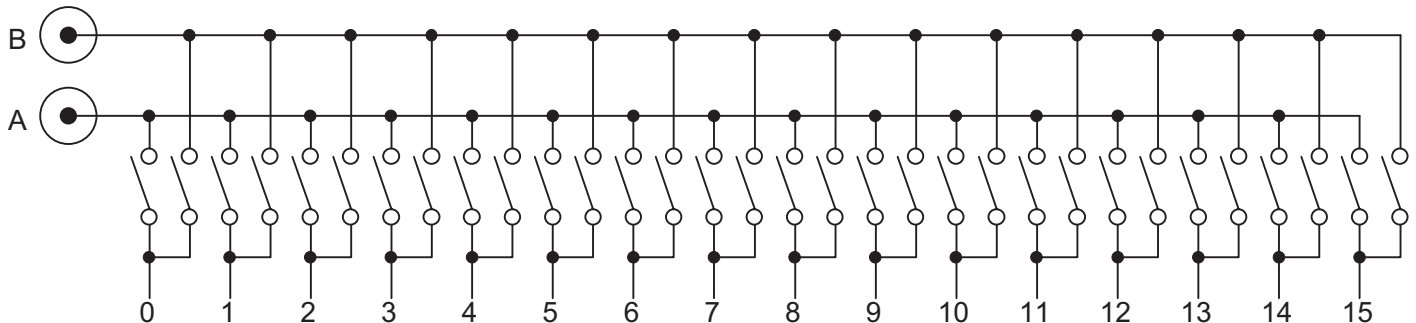


Fig. 1 PX/2x16-1 Switch Module

PX/2(2x8)-1 SWITCH MODULE

This module has two 2x8 Matrices as shown in Fig. 2 with 4 input connectors and two sets of 8 outputs on the card edge connector.

Sixteen of these modules can be assembled in the PX/512-1B Chassis to make two separate 32x8 Matrices or bussed on the motherboard as shown in the single pole version of Fig. 6 to make one 64x8 Matrix.

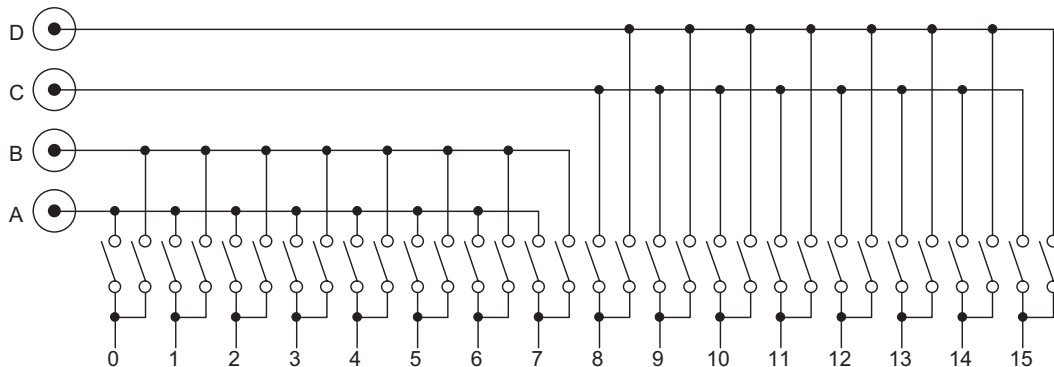


Fig. 2 PX/2(2x8)-1 Switch Module

TWO POLE SWITCH MODULES

These Modules are available as either 2x16 Matrices or two 2x8 Matrices and with either Type S dry reed relays, Type M mercury wetted reed relays or Type LT low thermal relays.

The inputs to the modules can be either BNC receptacles (-N), 20 pin headers (-H) or screw terminals (-S).

Both the center conductor and isolated shield of the BNC are switched. The 20 pin header or screw terminals can be used for shielded twisted pair cables where the signal pair is switched and the shield is carried through the matrix.

The module outputs go to two 25 pin card edge connectors which plug into two motherboards bussing the modules into the matrix configuration.

PX/2x16-2 SWITCH MODULE

This is a 2x16 Switch Module shown in **Fig. 3** with two input connectors and 16 outputs on two card edge connectors.

Sixteen of these modules can be assembled in the PX/512-2A Chassis to make a 32x16 Matrix as shown in **Fig. 5**.

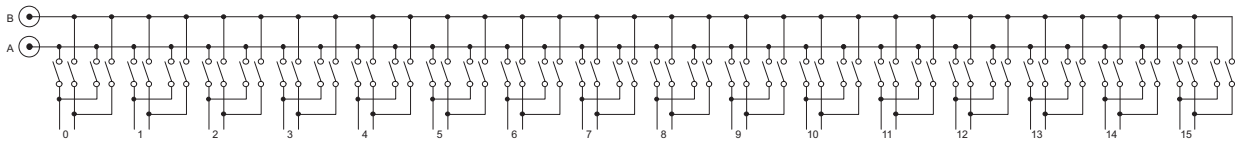


Fig. 3 PX/2x16-2 Switch Module

PX/2(2x8)-2 SWITCH MODULE

This module has two 2x8 Matrices as shown in **Fig. 4** with 4 input connectors and two sets of 8 outputs on the card edge connector.

Sixteen of these modules can be assembled in the PX/512-2B Chassis to make two separate 32x8 Matrices or bussed on the motherboard as shown in **Fig. 6** to make one 64x8 Matrix.

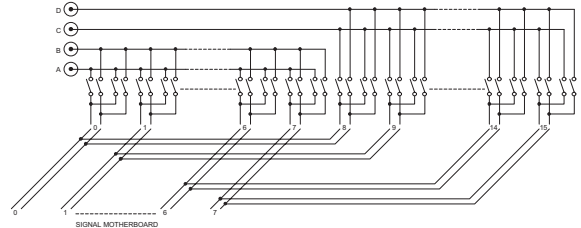


Fig. 4 PX/2(2x8)-2 Switch Module

MATRIX CONFIGURATIONS

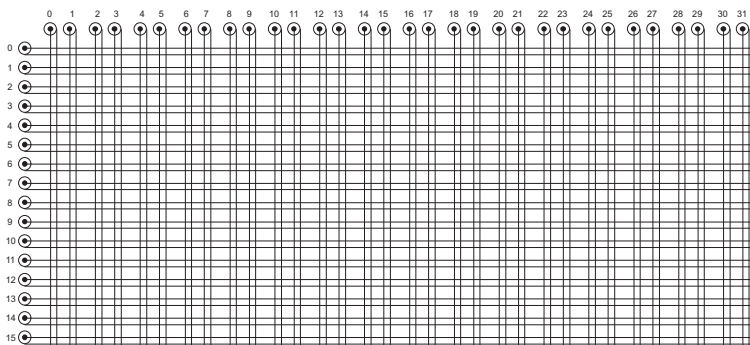


Fig. 5 32x16 Matrix

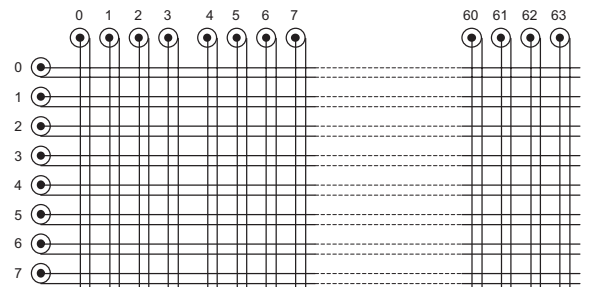


Fig. 6 64x8 Matrix

SWITCH SPECIFICATIONS

Three types of switches are available, the Type S, Type M and Type LT.

Type S Standard is a dry reed switch for most medium range applications.

Type M Mercury is a mercury wetted switch for high power or low contact resistance applications.

Type LT Low Thermal is a dry reed switch for low level applications with less than 1 microvolt offset.

All switches are guaranteed for 100 million operations when used within the following specifications:

	Type S	Type M	Type LT
Contact Rating	10VA	50VA	10VA
Maximum Switch Voltage	200V	500V	100V
Maximum Switch Current	0.5A	2A	0.2A
Breakdown Voltage	400V	1000V	200V
Operate Time, less than	1ms	2ms	1ms

MATRIX SPECIFICATIONS

The Matrices are designed for maximum bandpass and isolation between channels.

All test results are on a full chassis of 16 modules with 50 ohm source and 50 ohm termination.

32x16 MATRICES

- Bandpass DC to 20 MHz
- Isolation -40dB at 10 MHz
- Crosstalk -30dB at 10 MHz

64x8 MATRICES

- Bandpass DC to 10 MHz
- Isolation -40dB at 10 MHz
- Crosstalk -40dB at 10 MHz

GENERAL SPECIFICATIONS

Power - 100-130 Volts AC or 200-240 Volts AC, 50 to 60 Hz, 100 W.

Environment - Operating Temperature 0° to 50° C.
Storage Temperature -25° to 65° C.

CONNECTOR OPTIONS

The Modules and Chassis are available with the following options selected by the suffix at the end of the Model Number:

- N** Indicates the BNC receptacles with isolated shield for two pole switching and ground shield for single pole switching.
- H** Indicates header connectors, with 16 pin headers for the single pole modules and 20 pin headers with two wire plus shield for two pole switching.
- S** Indicates terminal with screw terminal mates which have two terminals for the single pole modules and three terminals for two pole modules.
- W** Indicates special wiring to customer specification.

CONTROL MODULES

Plug in Modules control the PX/512 Mainframes from the IEEE488 Bus or the RS232 Serial Port.

The Controls can Select and Latch or Unlatch any Switch in the Matrix. The controls can also request the Status of any Switch or can Request the Status of the complete Matrix.

The cycle time to Select and Latch a relay and obtain status is 30 msec.

IF-5 IEEE488/RS232 COMBINED MODULE

This Module combines all the features of the RS232 Serial and IEEE488 GPIB Bus Modules detailed in the **Applications Bulletin AP-5.**

IF-6 LAN INTERFACE

This module interfaces between the Local Area Network and the RS232 Control Modules using TCP/IP commands as described in the **Applications Bulletin AP-5.**

MC-2 MANUAL CONTROL

This Manual Control has a Keypad and LCD Display on the front panel so that the operator can select any relay and Latch the Relay or check the Status of the Relay on the Display.

VMC VIRTUAL MANUAL CONTROL

This software enables the remote operator to view the Status of the Matrix using a full Graphical User Interface.

The matrix configuration is displayed and crosspoints are selected by a point and click operation. Each selected crosspoint is prominently shown on the display.

Custom labelling of the Inputs and Outputs can be programmed.

One optional mode of operation prevents selection of switches that would interconnect two Inputs or two Outputs.

RAM OPTION

This option is available with the above Control Modules and with the MESA Control Unit.

Switch selections can be stored in a battery back up RAM so that the switches can be latched to a preset configuration up to 1000 switch selections.

After power loss, the switch matrix will reset to the last selected switch configuration.

SOFTWARE

Drivers and/or sample programs are available for the most commonly available application programming languages.

WARRANTY

CYTEC Corp. warrants that all products are free from defects in Workmanship and Materials for a period of five years and that all switches are guaranteed for their Rated Operations.

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