

## RS SERIES SWITCHING SYSTEMS FOR AUTOMATIC TEST AND COMMUNICATIONS

The RS Series of computer controlled switching systems are designed to switch multiwire groups of signals on standard D9, D15 or D25 connectors. These systems are typically used for signals such as parallel TTL, RS232, RS422, WAN or Modems, but they can also be used for any group of analog or digital signals having a bandpass below 30 MHz or data rate below 20 Mbps. A modular design concept is used that provides configuration flexibility by allowing different control modules, switch modules and display modules to be assembled in one chassis.

LED displays and switch point Status Feedback are available on all systems. Computer control via 10/100 Ethernet LAN ( TCP ), IEEE488 ( GPIB ) and RS232 is standard, while USB, and manual controls are optionally available.



RS/16 Mainframe Front Panel



RSM/16x8 Mainframe with Keypad and LCD Manual Control option

There are two basic Series: RS and RSM.

The RS Series are passive, bidirectional relay-based Multiplexers, connecting one of up to 16 multiwire signal groups to a single signal common. Nine, fifteen or twenty-five wires are switched simultaneously. The RSM Series are bidirectional, non blocking relay matrices. A modular design allows the configuration of matrices from 1x8 or 2x4 up to 16x8 or 32x4. Custom configurations are easily built to your specs.

### RS MULTIPLEXERS

These pre-wired chassis hold RS Switch Modules built with D9, D15 or D25 style connectors and switch 9, 15 or 25 wires. **RS/16 Mainframe** accepts up to 16 of the RS Modules as a 16x1 Multiplexer.

**RS/16-E Expansion Chassis** may be used with a MESA controller to build multiple chassis multiplexers up to 256x1, depending on bandpass restrictions.

#### RS Switch Modules

RS Switch modules are available as 9, 15 or 25 wire versions with D9, D15 or D25 connectors. All wires are switched in unison using Type A armature relays suited for analog or digital data. The modules switch the signals through the system as a 1 to 1 connection and act exactly like a piece of cable. No impedance matching necessary.

### WARRANTY

CYTEC Corp. warrants that all products are free from defects in workmanship and materials for a period of 5 years. Relays are guaranteed for their rated operations when used within their published voltage, current and power specifications.

### RSM MATRICES

These Matrices are made up of RSM Mainframes pre-wired in the requested Matrix configurations and holding up to 16 of the RSM Switch Modules. Switch Modules are available that switch either 9, 15 or 25 wires to D9, D15 or D25 connectors.

#### RSM MAINFRAMES

These Mainframes are available in three basic configurations. **RSM/16x8 Mainframe** is pre-wired to hold sixteen of the RSM/1x8 Switch Modules in a 16x8 Matrix configuration. **RSM/32x4 Mainframe** is pre-wired for sixteen of the RSM/2(1x4) Switch Modules in a 32x4 Matrix configuration. **RSM/2(16x4) Mainframe** is pre-wired for sixteen of the RSM/2(1x4) Switch Modules as two separate 16x4 Matrix configurations.

#### RSM SWITCH MODULES

These Switch Modules are available in two basic configurations. These modules switch either 9, 15 or 25 wires to D9, D15 or D25 connectors.

**RSM/2(1x4) Module** has two separate 1x4 multiwire matrix configurations.

**RSM/1x8 Module** has one 1x8 multiwire matrix configuration.

## RS MULTIPLEXERS

Are passive, relay-based multiplexers switching from 9 to 25 wire signals such as RS232, RS422 or TTL in applications including Modems, Printers or Token Ring. Bandpass is DC to 20 MHz for a 16x1, higher for smaller configurations.

## RS MAINFRAMES

Are 19" rack mounted units 3.5" high and 15.6" deep with power supplies, LED Displays and pre-wired motherboards which accept the RS Switch Modules. The basic chassis is the RS/16 Mainframe.

### RS/16 MAINFRAME

This unit holds up to sixteen RS Switch Modules and has sixteen switchpoint status LEDs on the front panel. It can switch up to 25 wires from sixteen input ports to one output port, or the reverse, as shown in Figure 1.

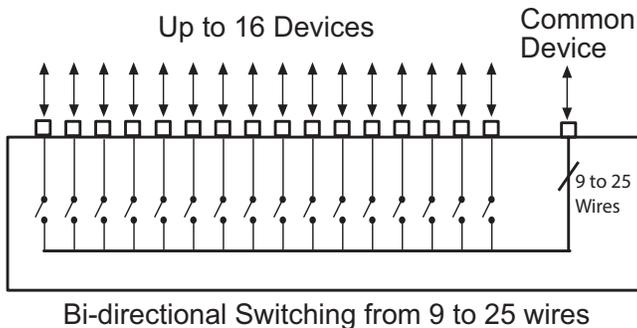
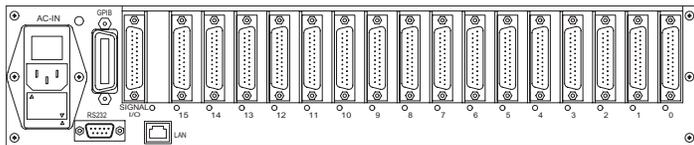


Figure 1



RS/16-MF with D25 Switch Modules

### IF-11 LAN/GPIB/RS232 CONTROL

Cytec's newest control module has the three most popular control interface protocols built into one module and is backwards compatible with all previous Cytec control modules.

**LAN (TCP)** - 10/100BaseT Ethernet with an RJ45 Connector. The interfaces uses a static IP easily reset by the end user.

**GPIB** - IEEE488.2 compliant control module. Works with all GPIB control cards and software including National Instruments, Matlab and Keysight. Drivers available upon request.

**RS232** - Standard D9 serial port which can be used from computer com ports or USB to COM port cables

### PB/16 MANUAL CONTROLS

Optional pushbutton switches on the front panel can select and control up to 16 switch ports when used with the IF-11.

## RS SWITCH MODULES

The RS/9, RS/15 and RS/25 Modules switch, respectively, nine, fifteen and twenty-five poles and are built with Type A relays. Connector types are subminiature D9, D15 or D25, and either -P pins or -S sockets can be user specified.

### RS/9 SWITCH MODULE

This module is built with a D9 connector and Type A relays and switches nine wires.

### RS/15 SWITCH MODULE

This module has a D15 connector, with Type A relays switching all fifteen wires.

### RS/25 SWITCH MODULE

This module utilizes a D25 connector and Type A relays switching all twenty-five wires.

## PLUG or SOCKET D TYPE CONNECTORS

To specify Plug (male) D type connectors, add -P to the Switch Module part number. Adding -S specifies Socket (female) connectors. For example, the RS/15-S is built with a subminiature D15 Socket connector.

## AVAILABLE MATING CONNECTORS

The following mating connectors can be purchased for a small additional charge.

- D9-R** - Nine pin ribbon cable connector
- D9-C** - Nine pin crimp type connector
- D15-R** - Fifteen pin ribbon cable connector
- D15-C** - Fifteen pin crimp type connector
- D25-R** - Twenty-five pin ribbon cable connector
- D25-C** - Twenty-five pin crimp type connector

## SWITCH SPECIFICATIONS

**Type A** relays are sensitive, high reliability armature relays and are well suited for multiple wire data signals. They are rated for 10 million operations when used as specified.

SPECIFICATION	TYPE A
Contact Rating VA	30
Switching Voltage DC	110V
Switching Current DC	1.0A
Carrying Current DC	1.0A
Breakdown Voltage DC	750V
Operate Time MSec	3

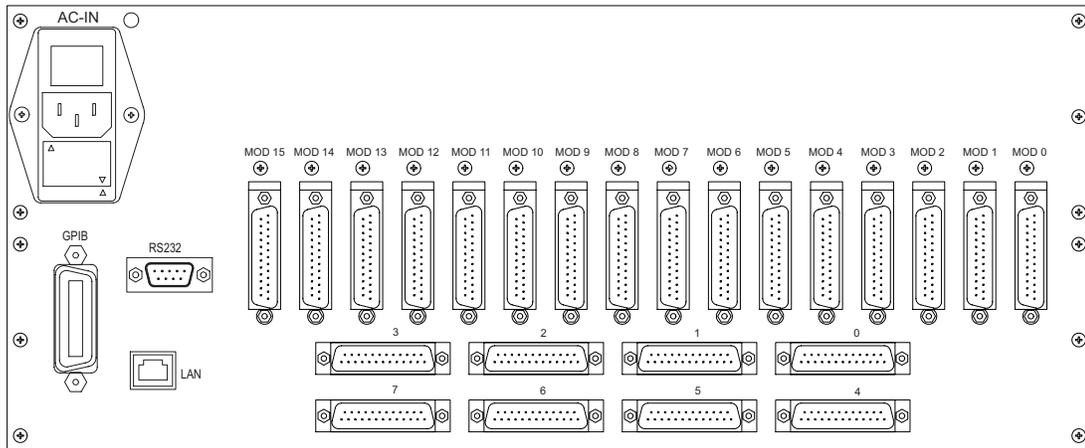
## Custom Configurations! Low NRE!



Nine cable A/B group switch using RS9 Switch Modules and D9 connectors

# RSM MATRICES

RSM Matrices are designed to switch multiwire data communications signals such as RS232, RS422 and RS530 Subsets. RSM Systems can switch nine, 15 or 25 wires and are available with D9, D15 or D25 style connectors.



## RSM/16x8-25 Mainframe Rear Panel

### MAINFRAMES

Mainframes are 19" rack mounted chassis, 7" (4U) high and 21" deep, with power supplies and pre-wired motherboards that hold Switch Modules, LED Display Modules and Control Modules.

#### RSM/16x8 SERIES

These Mainframes hold up to 16 of the RSM/1x8 Switch Modules assembled in a 16x8 configuration. Bandpass is DC to 40 MHz (-3dB).

**RSM/16x8-25** chassis holds the RSM/1x8-25 Modules, switching 25 wires from D25 connectors.

**RSM/16x8-15** chassis accepts the RSM/1x8-15 Modules and switches 15 wires on D15 connectors.

**RSM/16x8-9** chassis holds the RSM/1x8-9 Modules, switching 9 wires to D9 connectors.

#### RSM/32x4 SERIES

These Mainframes are built with up to 16 of the RSM/2(1x4) Switch Modules assembled in a 32x4 configuration. Bandpass is DC to 30 MHz (-3dB).

**RSM/32x4-25** chassis accepts the RSM/2(1x4)-25 Modules, switching up to 25 wires to D25 connectors.

**RSM/32x4-15** chassis holds the RSM/2(1x4)-15 Modules and switches up to 15 wires from D15 connectors.

**RSM/32x4-9** is built with the RSM/2(1x4)-9 Modules switching up to 9 wires on D9 connectors.

#### RSM/2(16x4) SERIES

These Mainframes hold up to 16 of the RSM/2(1x4) Switch Modules assembled as a dual 16x4 configuration. Bandpass is DC to 40 MHz (-3dB).

**RSM/2(16x4)-25** chassis accepts the RSM/2(1x4)-25 Modules switching up to 25 wires with D25 connectors.

**RSM/2(16x4)-15** chassis is built the RSM/2(1x4)-15 Modules switching up to 15 wires to D15 connectors.

**RSM/2(16x4)-9** chassis holds the RSM/2(1x4)-9 Modules switching up to 9 wires to D9 connectors.

### SWITCH MODULES

The RSM Switch Modules are built as either a single 1x8 matrix, or as a dual 1x4 matrix configuration. They are bidirectional and switch 9, 15 or 25 wires to D9, D15 or D25 connectors. Switching is done with high reliability, passive Type A Relays.

#### RSM/1X8 SWITCH MODULES

These utilize a 1x8 configuration as shown in Fig. 3.

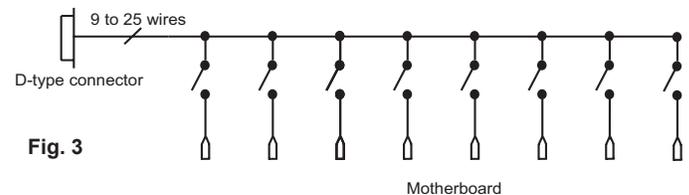


Fig. 3

**RSM/1x8-25** switches 25 wires from D25 connectors and are used with the RSM/16x8-25 Mainframe.

**RSM/1x8-15** switches 15 wires using D15 connects and are assembled in the RSM/16x8-15 Mainframe.

**RSM/1x8-9** switches 9 wires using D9 connectors and plug into the RSM/16x8-9 Mainframe

#### RSM/2(1X4) SWITCH MODULES

These modules are built as a dual 1x4 configuration as shown in Fig. 4 :

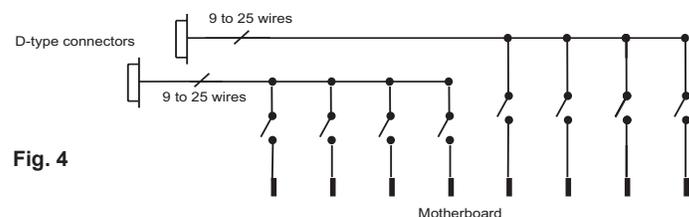


Fig. 4

**RSM/2(1x4)-25** switches 25 wires using D25 connectors in either the RSM/32x4 or RSM/2(16x4) Mainframe.

**RSM/2(1x4)-15** switches 15 wires from D15 connectors and are used in the RSM/32x4 or RSM/2(16x4) Mainframe.

**RSM/2(1x4)-9** switches 9 wires using D9 connectors in the RSM/32x4 or RSM/2(16x4) Mainframe.

# CONTROLS

The RS Series of computer controlled Mainframes are available with the following controls: combined Ethernet LAN/IEEE488/RS232 (standard), and optional USB or Manual Control. The controls select any switch and can Latch, Unlatch and request Status of the switch using either Matrix or Multiplex Modes. In the Matrix Mode, any number of switches can be Latched as required. In the Multiplex Mode, only one switch can be Latched at any time; any previously latched switches are cleared.

## RS MULTIPLEXER CONTROLS

### IF-11 LAN/GPIB/RS232 CONTROL

Cytec's newest control module has the three most popular control interface protocols built into one module and is backwards compatible with all previous Cytec control modules.

**LAN** - 10/100BaseT Ethernet with an RJ45 Connector. The interface uses a static IP easily reset by the end user. There are three ports available and all may be used at the same time. Two ports can be set by the end user and one is the default Telnet which may be disabled.

**GPIB** - IEEE488.2 compliant control module. Commonly used with automated test applications. Works with all GPIB control cards and software including National Instruments, Matlab and Keysight. Drivers available upon request.

**RS232** - Standard D9 serial port which can be used from computer com ports or USB to COM port cables

### PB/16 MANUAL CONTROLS

Optional pushbutton switches on the front panel can select and control up to 16 switch ports when used with the IF-11.

## RS SPECIFICATIONS

### GENERAL SPECIFICATIONS

**DIMENSIONS** -- 19" Rack Mount width, 3.5" ( 2 RU ) Height, 15.6" deep.

**WEIGHT** - Maximum weight with full complement of Modules in the RS/16-MF is less than 25 lbs.

**POWER** - 75 watts at 100-130 Volts AC or 200-260 Volts AC.

**ENVIRONMENT** - Operating 0°to 50 °C  
Storage -25°C to 65°C

### EXPANSION CHASSIS

RS and RSM Expansion Chassis can be supplied in all the above configurations. These chassis are controlled from a MESA Control unit described in the **MESA Bulletin**. Up to 16 Expansion Chassis can be controlled from one MESA, thereby configuring larger switching systems.

### CUSTOM OPTIONS

Many CYTEC Switching Systems are available with custom configurations, connectors or controls. Please contact Cytec with your specific needs.

## RSM MATRIX CONTROLS

### CL8 DISPLAY/DRIVER MODULE

One CL8 Module is required for each RSM Switch Module. This module decodes logic and drives the Switch Module relays. A discrete LED, visible through the front panel, is wired to each drive, providing confirmation of all latched switchpoints. The LEDs are an extremely valuable aid in debugging and troubleshooting.

### IF-11 LAN/GPIB/RS232 CONTROL

The three most popular control interface protocols built into one module and backwards compatible with all previous Cytec control modules.

**LAN** - 10/100BaseT Ethernet with an RJ45 Connector.

**GPIB** - IEEE488.2 compliant control module.

**RS232** - Standard D9 serial port which can be used from computer com ports or USB to COM port cables

### MC-2 MANUAL CONTROL

This manual control provides a front panel keypad and display which selects any switch and confirms the command operation.

## RSM SPECIFICATIONS

### GENERAL SPECIFICATIONS

**DIMENSIONS** -- 19" Rack Mount width, 7" ( 4 RU ) Height, 15.6" deep.

**WEIGHT** - Maximum weight with full complement of Modules in the RSM/16x8 is less than 50 lbs. All other units are less than 25 lbs.

**POWER** - 100 watts at 100-130 Volts AC or 200-260 Volts AC.

**ENVIRONMENT** - Operating 0°to 50 °C  
Storage -25°C to 65°C

### SWITCH SPECIFICATIONS

**Type A** relays are sensitive, high reliability armature relays and are well suited for multiple wire data signals. They are rated for 10 million operations when used as specified.

SPECIFICATION	TYPE A
Contact Rating VA	30
Switching Voltage DC	110V
Switching Current DC	1.0A
Carrying Current DC	1.0A
Breakdown Voltage DC	750V
Operate Time MSec	3

**CONTACT 1-800-346-3117 or 1-585-381-4740 FOR TECHNICAL ASSISTANCE  
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