



# Market Central®

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## SwitchMaster® R6150 Series Compact Ganged A/B Switching System

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R6150 5-Port RJ45 CAT-5 A/B Switch	5101350	includes one external power supply module
Optional External Power Supply Module	5001351	use a 2 <sup>nd</sup> supply for redundant power applications

(lead-free versions of the above items are also available by changing the part # from 5xxxxxx to 6xxxxxx)

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## Federal Communications Commission (FCC) Statement

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

### 1. Specifications

#### Connectors:

- (1) RJ45 – Status and Control port
- (15) RJ45 – A, B, and Common connectors for 5 ports
- (2) Two-Position DC Power Entry

#### Compatibility:

switches all 8 leads; transparent to data rates, formats, protocols and signal levels; supports 10/100/1000 Base-T, T1/E1, RS232/RS422/RS485, and other types of data communications circuits

#### Indicators:

- (1) Dual High RED/GREEN Status LED, RED for A, GREEN for B
- (1) Dual High RED/RED Power Status LED for PWR1 and PWR2 (when redundant power supplies are used)

#### Switches:

- (1) momentary toggle switch
- (1) key-lock switch

#### Status Relay Contacts:

Rated for 1 Amp at 30 VDC (resistive), 0.3 Amp at 110 VDC (resistive), 0.5 Amp at 125 VAC (resistive). Because the status contacts are provided on an RJ45 connector, they are not recommended for high voltage AC operation.

#### Remote Inputs:

Remote inputs are activated by connecting them to ground. They require about 1 milliamp for operation. When not connected to ground, the remote inputs may present a voltage up to the power supply (12 VDC). Series resistors limit the remote contact activation current to a maximum of about 3 milliamps. The minimum activation time is about 10 milliseconds.

#### Power:

12 VDC, 500 mA switching Power Supply. A second power supply can be used for redundancy. The R6150 consumes 20 mA while idle, and an additional 275 mA while switching.

#### Environment:

TEMPERATURE	0° to 40° C operating, -20° to 70° C non-operating
HUMIDITY	10% to 95% non-condensing
ALTITUDE	10,000 ft maximum operating

#### Rack Size:

RACK – 1.74” H x 19” W x 8.0” D (not including handles and connectors)

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## 2. Introduction

The R6150 Ganged A/B Switching System is a 1U high 19 inch rack style gang switch that supports 5 RJ45 switch ports. The 5 RJ45 switch ports are ganged, meaning that they are controlled together. They may be controlled with the front panel toggle switch, or via a remote external toggle switch or external relay contacts. A key-lock switch on the front of the unit allows the user to enable or disable manual switching (disables the front panel toggle switch). The remote control contact inputs from two or more R6150 units may be connected in parallel to allow additional ports to be controlled with a single set of external contacts. A set of relay contact outputs provide status of the selected connection.

The R6150 is a true Logic Only switch; it does not contain a processor or memory. The R6150 allows the user to connect the five A ports or the five B ports to the five Common ports. The internal switching circuitry uses latching telecommunication relays which allows the switch ports to retain their selected connections and maintain data flow even when power is lost or is removed.



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## 3. Configuration

### 3.1 Status / Control Port

Figure 3.1.1 – RJ45 Status and Control Port Pin Number Diagram

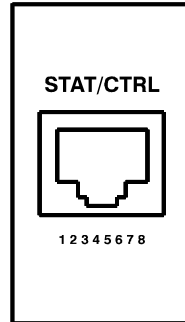


Table 3.1.2 – RJ45 Status and Control Port Pin Assignment

Pin	Signal Name	Signal Direction
1	Status Relay Common Contact	Output
2	Status Relay Contact (A)	Output
3	Status Relay Contact (B)	Output
4	No Connection	
5	No Connection	
6	Remote B Input	Input
7	Remote A Input	Input
8	Signal Ground	Input

When the A state is selected, the five A Ports are connected to the five Common Ports, and the Status Relay Contact (A) is connected to the Status Relay Common Contact. When the B state is selected, the five B Ports are connected to the five Common Ports, and the Status Relay Contact (B) is connected to the Status Relay Common Contact.

The status relay contacts are rated for 1 Amp at 30 VDC (resistive), 0.3 Amp at 110 VDC (resistive), 0.5 Amp at 125 VAC (resistive). Because the status contacts are provided on an RJ45 connector, they are not recommended for high voltage AC operation.

The R6150 has two independent power supply entry connectors. One power supply is required for operation. A second power supply may be used for redundant power.

## 4. Installation

The five sets of switch ports are located on the rear of the rack, along with the status/control port and the power input connectors.

### 4.1. Initial Installation

- 4.1.1 If connecting multiple racks together, connect the remote inputs of the R6150 units in parallel before applying power to the racks. The R6150 status output contacts are isolated from all other circuits on the R6150, thus allowing either series or parallel connections of the status outputs when multiple racks are being controlled.
- 4.1.2 Apply power to each rack using the 12 VDC regulated power supply provided with your system. The ramp on the power supply connector should face the tab on the power supply entry header. When first installed, each switch should be cycled from A to B and back. It is possible for the latching relays to have changed state during shipping. Cycling the switch will assure that all relays are in the same state.
- 4.1.3 Connect cables between the A, B and Common switch ports and your devices. The A/B Switch ports provide

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straight thru connections and are bidirectional, i.e. they have no preference to signal direction. If your application requires a cross-over cable, use only 1 cross-over cable in that path. Use a straight through cable on the other side of the switch port.

## 4.2. Adding a rack to an installed multi-rack system

The following procedure was developed to prevent inadvertent system switching when adding a rack to an installed system of daisy-chained racks.

- 4.2.1 Before connecting the new rack to the existing multi-rack system, it is recommended that the switch is cycled from A to B and back. It is possible for the latching relays to have changed state during shipping. Cycling the switch will assure that all relays are in the same state. After cycling the switch, remove power.
- 4.2.2 Remove power from all racks in the existing multi-rack system. The R6150 Ganged A/B Switching System uses latching relays, so the equipment connected thru the racks that are powered down will continue to operate normally.
- 4.2.3 Connect the remote inputs from the new rack in parallel with the remote inputs from the existing multi-rack system. Connect the status contacts as appropriate for your application.
- 4.2.4 Apply power to all racks, using the 12 VDC regulated power supply provided with each unit. The ramp on the power supply connector should face the tab on the power supply entry header.

## 5. Operation

When power is applied to the R6150, the appropriate Power Supply LED should illuminate. Either the "A" LED or the "B" LED should illuminate to indicate the currently connected ports.

When the Key-Lock switch is OFF, the toggle switch in the rack will be disabled. Note that the rack will still switch in response to remote contact closure if using this option. When the Key-Lock switch is ON, the toggle switch in the rack will be enabled.

Hold the switch in the "A" position to connect the five A Ports to the five Common Ports. The "A" LED will illuminate when the switch operation has been completed. Release the switch when switching has finished. Hold the switch in the "B" position to connect the five B Ports to the five Common Ports. The "B" LED will illuminate when the switch operation has been completed. Release the switch when switching has finished.

### 5.1 Switching Using the Remote Contact Inputs

The Remote inputs are activated by connecting them to ground. Connect Remote input A to ground to switch the R6150 to the A state. Connect Remote input B to ground to switch the R6150 to the B state. If both remote inputs are connected to ground at the same time, the switch will not change states. The remote inputs require about 1 milliamp for operation. When not connected to ground, these remote inputs may present a voltage up to the power supply (12 VDC). A series resistor limits the remote contact activation current to a maximum of about 3 milliamps. If more load current is required for specific applications, contact your supplier for options. The remote contacts may be momentary (10 milliseconds or more) or may be held for extended periods. Internal circuitry disables the relay switching current when switching is complete to minimize power consumption when remote contacts are held for extended periods.

### 5.2 Status Contact Outputs

The status contacts are isolated from the circuit, so any contact arrangement is possible. The status relay contacts are rated for 1 Amp at 30 VDC (resistive), 0.3 Amp at 110 VDC (resistive), 0.5 Amp at 125 VAC (resistive). Because the status contacts are provided on an RJ45 connector, they are not recommended for high voltage AC operation.

When the A state is selected, the Status Relay Contact (A) is connected to the Status Relay Common Contact. When the B state is selected, the Status Relay Contact (B) is connected to the Status Relay Common Contact.

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