Market Central®

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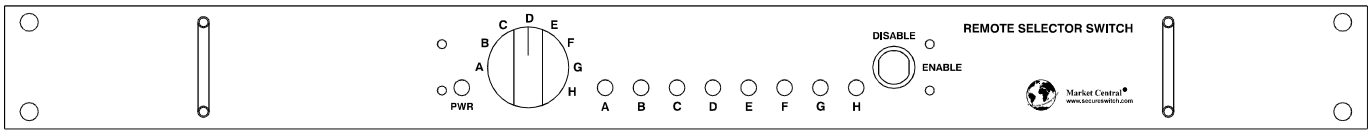
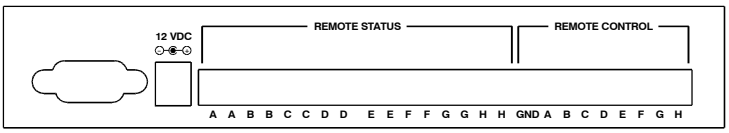
5101732-SC CUSTOM
n:1 SECURESWITCH® REMOTE CONTROL UNIT
WITH MANUAL AND SERIAL CONTROL

September 2018

FRONT PANEL VIEW



REAR PANEL VIEW



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1. Specifications:

Connectors: (1) 2.1-mm DC power input jack, inside positive
(1) Nine-position terminal block for remote control connections to n:1 SecureSwitch
(2) Eight-position terminal blocks for remote status connections to n:1 SecureSwitch
(1) DB9 female connector for RS232 serial interface pinned as DCE

Switches: (1) Eight-position rotary switch, (1) Key-lock switch

Indicators: (1) LED for power, (8) LEDs for remote status indicators

Temperature: 32 to 104°F (0 to +40°C) operating
14 to 158°F (-10 to +70°C) storage

Relative Humidity: up to 80%, non-condensing

Power: 100 – 240 VAC, 47 – 63 Hz, wall mount supply, 12 VDC output

Size: 19" Wide x 1.72" High x 5.9" Deep (including handles)

Weight: 2 lbs including external wall mount supply

Remote Status "Inputs": Designed to connect directly to the A-A thru H-H status outputs of an n:1 SecureSwitch. One contact in each pair (A-A thru H-H) is pulled-up to 12 VDC thru approximately 240 ohm resistance to provide wetting current for external dry contacts being monitored. The other contact in each pair is connected to the Remote Control Unit's internal signal ground. The resistance of external dry contacts and associated cable not to exceed 100 ohms.

Remote Control "Outputs": Designed to connect directly to the A thru H and GND inputs of an n:1 SecureSwitch.
Rotary Switch Contact Ratings: Contact resistance: 100 milliohms max.; Contact rating: 150 mA @ 60 V (AC/DC) resistive load, 1A non-switching; Reliability: > 10,000 switching cycles.
Relay Contact Ratings: Contact resistance: 75 milliohms max (initial); Contact rating: 1A at 30 VDC (resistive load); Max switching voltage: 60 VDC (30 W resistive), 60 VAC (62.5 VA resistive); Reliability: 1,000,000 operations at 50 VDC, 0.1A (resistive load).

2. Introduction:
The n:1 SecureSwitch Remote Control Unit (RCU) is designed to provide remote status and control of the n:1 SecureSwitch products. A rotary switch on the front of the RCU is used to select the n:1 SecureSwitch device's fiber optic connection state. The rotary switch can be enabled or disabled with the key-lock switch. The LEDs show the status of the n:1 SecureSwitch connection. The rear panel terminal blocks are pinned to match the n:1 SecureSwitch Remote Control Inputs and Remote Status Outputs. The custom 5101732-SC adds RS232 serial control of latching relays which are connected in parallel with the rotary switch Remote Status Outputs. The latching relays are controlled with RS232 serial SET commands and are not disabled by the key-lock switch. The latching relays will maintain the set connection state if power is lost or removed. The custom 5101732-SC also adds RS232 serial status using the GET command.

3. Installation:
Before making connection to the n:1 SecureSwitch device, the latching relays in the RCU should be set to a known state, as the relays may have changed state during shipping. You will need to apply power to the RCU, using the 12 VDC power supply provided, to change the relay state. Remove power from the RCU before connecting to SecureSwitch. To avoid inadvertently changing connection states on the n:1 SecureSwitch device, set the key-lock switch to the DISABLE position, or set the rotary switch to the same position as the current n:1 SecureSwitch connection state.

Connect the 8-position REMOTE STATUS terminal blocks on the RCU to the n:1 SecureSwitch REMOTE STATUS OUTPUTS terminal blocks using straight through cables. Depending on the n:1 SecureSwitch model, some STATUS outputs may not be used.

PIN NAME	PIN NUMBER
A - A	pins 1 & 2
B - B	pins 3 & 4
C - C	pins 5 & 6
D - D	pins 7 & 8
E - E	pins 9 & 10
F - F	pins 11 & 12
G - G	pins 13 & 14
H - H	pins 15 & 16

8-pin REMOTE STATUS Terminal Blocks Pinout
(looking at rear panel pin 1 is on left, pins 9 through 16 are on the second 8 pin connector)

The ODD numbered REMOTE STATUS pins are pulled-up to 12 VDC through approximately 240 ohm resistance to provide wetting current for external dry contacts being monitored. The EVEN numbered REMOTE STATUS pins are connected to the RCU internal signal ground.

Connect the 9-position REMOTE CONTROL terminal block on the RCU to the n:1 SecureSwitch REMOTE CONTROL INPUTS terminal block using straight through cable. Depending on the n:1 SecureSwitch model, some CONTROL inputs may not be used.

PIN NAME	PIN NUMBER
GND	1
A	2
B	3
C	4
D	5
E	6
F	7
G	8
H	9

9-pin REMOTE CONTROL Terminal Block Pinout
(looking at rear panel pin 1 is on left)

The DB9 serial port on the custom 5101732-SC is configured as DCE for connection to a computer or similar DTE device. The RS232 serial port is set to 9600 baud, no parity, 8 data bits, 1 stop bit, with no flow control. The DSR and CTS signals are supported in case they are needed by the attached computer. Use a DB9 straight through cable to connect the RS232 DB9 on the rear of the RCU to a

computer or other DTE device's serial port. The table below shows the pinout of the RCU's DB9 connector.

DB9 Pin	Signal	Direction
2	Received Data	Output to Computer
3	Transmitted Data	Input from Computer
5	Signal Ground	Not-Applicable
6	Data Set Ready	Output to Computer
8	Clear To Send	Output to Computer

Apply power to the RCU, using the 12 VDC power supply provided. Installation is now complete.

4. Operation:
When the RCU is powered, the PWR LED will be illuminated. The appropriate status LED labeled A through H will be illuminated when the associated REMOTE STATUS contacts are shorted. For example if the two REMOTE STATUS contacts labeled C and C are connected, the C status LED will be illuminated. Note: the status LEDs only operate when the RCU is powered. When the n:1 SecureSwitch is first energized, it connects ALL REMOTE STATUS OUTPUTS for about 5 seconds, which will cause ALL RCU status LEDs to be illuminated.

The rotary switch on the RCU connects one of the eight REMOTE CONTROL contacts labeled A through H to the REMOTE CONTROL contact labeled GND through the key-lock switch. When the key-lock switch is in the DISABLE position, the GND connection is open, the rotary switch is disabled, and the n:1 SecureSwitch can be controlled with the push-button switches on its front panel. When the key-lock switch is in the ENABLE position, the GND is connected, the rotary switch is enabled and can be used to control the n:1 SecureSwitch. If the rotary switch is in a position which is supported by the attached n:1 SecureSwitch, and the key-lock switch is in the ENABLE position, the n:1 SecureSwitch should change to the selected connection state, and the push-button switches on the n:1 SecureSwitch will be inhibited. Note: the n:1 SecureSwitch REMOTE CONTROL INPUTS operate in parallel with the push-buttons on its front panel. ONLY one n:1 SecureSwitch input may be active at a time; if more than one n:1 SecureSwitch input is active, the n:1 SecureSwitch will not change state. To avoid inadvertent switching, the n:1 SecureSwitch input must be active for about 0.5 seconds before switching will occur. Therefore, it is possible to transition across several rotary switch positions without the n:1 SecureSwitch transitioning to each state between the current state and the desired state. For example, with the key-lock switch in the ENABLE position, the user can switch from the A state to the H state without transitioning to any state in between as long as the rotary switch is not allowed to rest in any of the intermediate positions for more than about 0.5 seconds. To ensure that the n:1 SecureSwitch does not transition to any undesired state, simply set the key-lock switch on the RCU to the DISABLE position before changing the rotary switch. When the rotary switch is in the desired position, set the key-lock switch to the ENABLE position. If the RCU rotary switch is set to a position that is not supported by the attached n:1 SecureSwitch, the attached n:1 SecureSwitch will function as if NO remote inputs are active.

CAUTION: If one of the Remote Control relays in the RCU was previously set using serial commands, and the user then enables the front panel rotary switch via the key-lock switch, this may cause two active inputs to the n:1 SecureSwitch. The n:1 SecureSwitch which will not switch if more than one valid input is active.

5. RS232 Serial Operation:
If using serial commands to control an n:1 SecureSwitch, the key-lock switch on the RCU should be set to the DISABLE position to prevent possible conflicts between the rotary selector switch and the serial commands. When the RS232 interface is ready to receive serial commands, it will output a prompt character “>”, and drive the CTS signal active High on its DB9 connector to indicate that it is ready. While the RS232 interface is processing commands, the CTS signal will be driven inactive Low. Once it has completed processing and is ready to receive additional commands, it will assert CTS active High

again. Note that the DSR signal will be driven active High when power is applied and will remain active high until power to the RS232 RCU is removed. Note that CTS and DSR do not need to be connected to the attached computer if the computer waits for the response from the RCU before sending the next command.

Commands are not case sensitive and can be entered as either upper or lower case ASCII text. The RCU echoes each character it receives back to your terminal, allowing the user to backspace to correct typing errors. Each word on a command line must be separated by a single SPACE character. The command is processed when you press the ENTER KEY.

Commands supported are shown in the following table: (each command must be followed by a carriage return character)

Command	Response	Comments
set x	Port x	For x = A, B, C, D, E, F, G, or H, the associated A, B, C, D, E, F, G, or H contact output on the RCU will be closed (connected to the GND pin) and the other contact outputs will be open. This will cause the attached n:1 SecureSwitch to change its connection state to the selected port.
set none	Port None	All contact outputs on the RCU will be open. When the RCU is in this state, the front panel pushbutton switches on the attached n:1 SecureSwitch can be used to manually operate the n:1 SecureSwitch. The rotary switch on the front of the RCU, if enabled by the key-lock switch may also be used to control the n:1 SecureSwitch. The RCU will still continuously monitor the SecureSwitch status contact outputs.
get	Port x, Port None, or Fault	The RCU will respond with the connection status of the n:1 SecureSwitch Remote Status Outputs. The response will be Port A if the A-A pair of status contacts are closed on the n:1 SecureSwitch. Likewise the response will be Port B, thru Port H if the associated pair of status contacts are closed. The response will be None if all pairs of status contacts are open on the n:1SecureSwitch. The response will be Fault if two or more pairs of status contacts are closed on the n:1 SecureSwitch.
Help	(see example output below)	The RCU responds with its firmware revision and a list of available commands

Example output of "help" command.

```
>help
RCU8, Rev. A
Commands:
set x (x = A, B, C, D, E, F, G, H, or None)
get (returns status, Port x, Port None, or Fault)
help (displays current commands and software revision)
>
```

CAUTION: If the front panel key-lock switch on the RCU is in the ENABLE position and a serial command is used to set one of the Remote Control relays in the RCU, this may cause two active inputs to the n:1 SecureSwitch. The n:1 SecureSwitch which will not switch if more than one valid input is active.

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