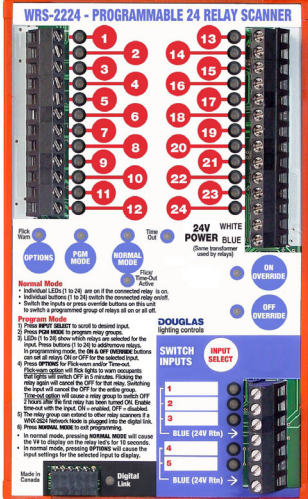


	<b>PART No.</b>	<b>DESCRIPTION</b>	<b>SPECIFICATION</b>
	<p><b>WRS-2224</b> 24 Relay Programmable Scanner</p>	<ul style="list-style-type: none"> <li>Relay scanners have wide application in low voltage lighting controls. Relay scanners permit a large group of relays to be switched together. Relay scanners also permit each relay in the group to be individually switched.</li> <li>WRS-2224 programmable scanners can assign relay groups with a built in keypad. Instructions are on the label of the scanner. Five relay groups are possible.</li> <li>Each of the 5 relay groups can have a flick warn option selected to warn occupants of an off sweep. After the flick warning, occupants can cancel the off signal with an override switch.</li> <li>Each of the 5 relay groups can have a time out option selected to automatically start a timer when a group relay is switched on then turn all group relays off when the timer expires.</li> </ul>	<ul style="list-style-type: none"> <li>Power: 24VAC / 50mA Class 2 Low Voltage device. Power rating does not include power used to switch relays.</li> <li>There are 5 master switch inputs that are compatible with all models of Douglas relay switches. Max. wire length for a master switch is 2000' (600m).</li> <li>Programmable scanners have a digital link socket that permits connection of network communication modules.</li> </ul> <p><b>Outputs</b></p> <ul style="list-style-type: none"> <li>WRS-2224: 24 Douglas relay outputs.</li> <li>Outputs fire in sequence (&lt;4 seconds) to prevent overloads in the line and low voltage circuits.</li> <li>Connect a maximum of 4 relays to each output. Max wire length is 500' (150m).</li> <li>Relay outputs are isolated from each other. The pulse of a local switch connected to a relay on an output will not pass through the scanner to a relay connected on another output.</li> </ul> <p><b>Programming</b></p> <ul style="list-style-type: none"> <li>Use the membrane keypad built into the face of the programmable relay scanner to assign relay groups to each of the master switch inputs.</li> <li>Program settings (relay groups) are not lost in the event of a power outage.</li> <li>Directions are printed into the front cover for handy reference.</li> </ul> <p><b>Environment</b></p> <ul style="list-style-type: none"> <li>Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.</li> <li>Ambient operating temperature: +15° to +120°F (-10° to +50°C).</li> </ul>

**WRS-2224 Programmable Relay Scanner**

**Relay Outputs**

24 output terminals (12 per side), are provided for relay control. Douglas 2-wire switches can be connected in parallel to permit individual control of a relay by switch.

**Individual Output LED's**

In operating mode, LEDs display if the relay is ON or OFF. In programming mode, LEDs display if relay is included in the group being programmed to a master input.

**Select Buttons & LED's for:**

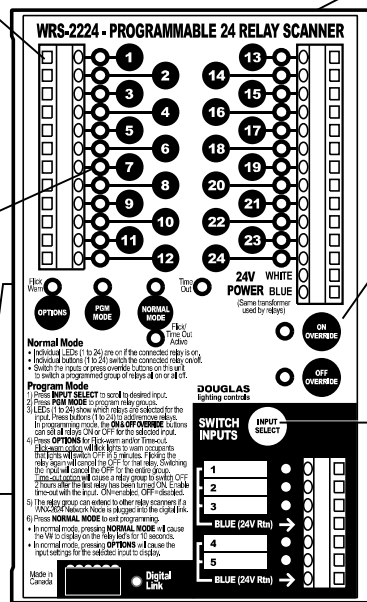
- 1) Operating mode
- 2) Program mode
- 3) Flick Warn or Time Out Option

**Directions**

Directions are printed on keypad for handy user reference.

**Direct Digital Control Socket**

Addressable RS-485, Lonworks and BACnet network communication modules are available.



**Individual Output Buttons**

In operating mode, use buttons to switch the connected relay ON or OFF. In programming mode, use buttons to enter or remove the relay from the group being programmed.

**Master Switch Override Buttons**

Use ON and OFF override buttons to switch relay groups. Use input select button to choose a relay group.

**Input Select Button**

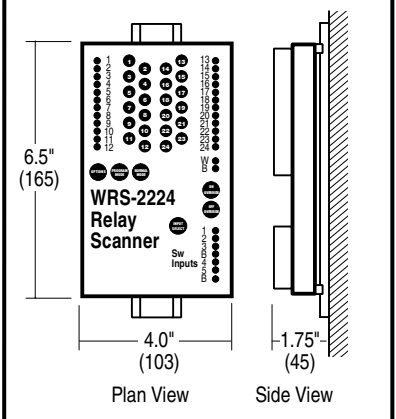
Use the input select button to select the relay group and master inputs 1, 2, 3, 4 or 5.

**5 Master Switch Inputs**

Connect Douglas 2-wire relay switches to master inputs to switch relay groups ON and OFF. Up to 3 switches and/or 2-wire timer outputs can be connected to the same master switch input.

**DIMENSIONS & MOUNTING**

- Relay scanners mount to 35mm DIN rail installed in relay panels. Unit shipped with DIN mounting rail.

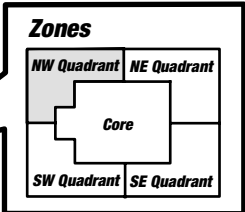
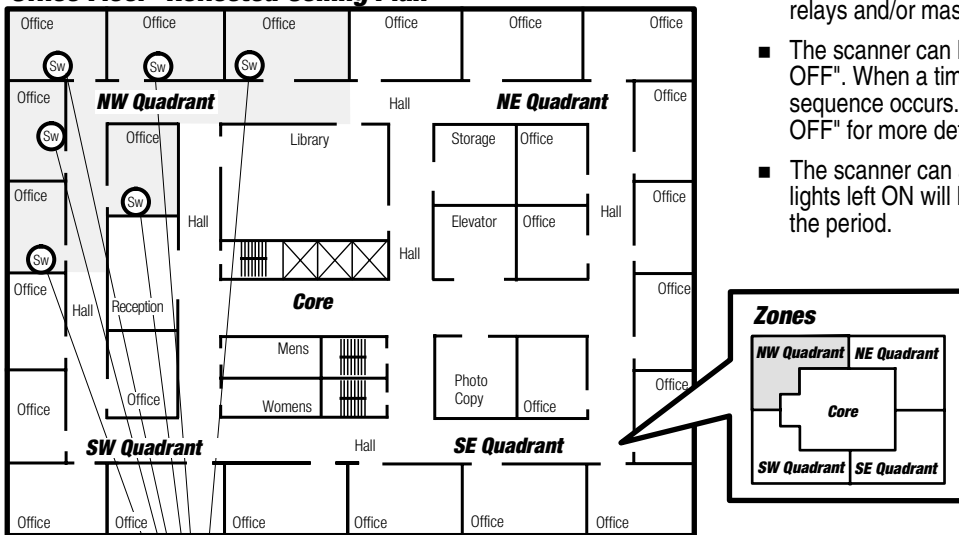


**CONNECTIONS**

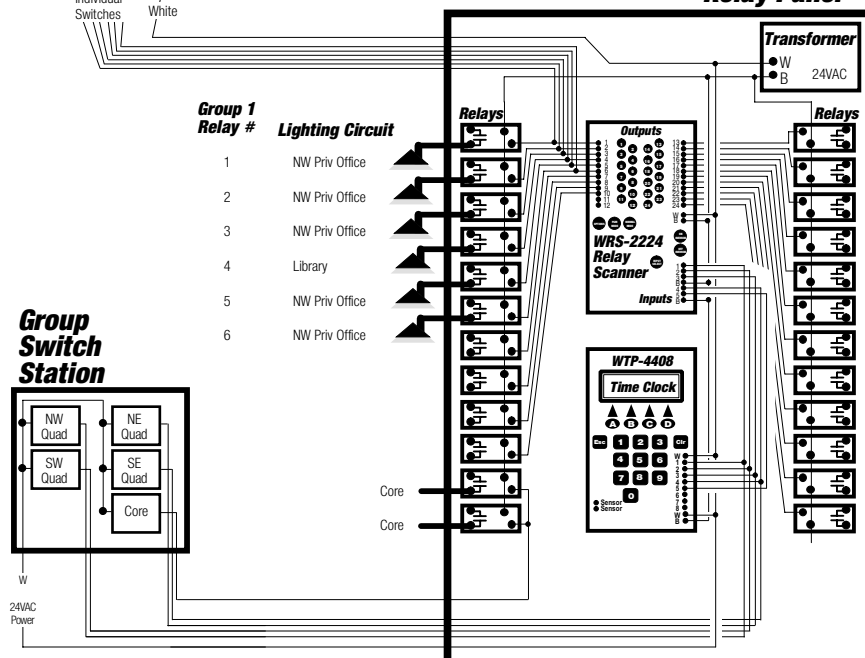
**Simple Stand Alone Panels**

- Relay scanners permit a group of relays to be controlled with a single master switch. Individual relays of the relay group can also be individually switched.
- Programmable relay scanners can control several relay groups. Use the keypad built into the front of the scanner to assign the relay groups. Connect the master switches or automation controls to the scanner's inputs. Changes to relay groups are easy to accomplish with the keypad, no rewiring is necessary.
- Timer automation will yield significant energy savings. A common application is to program a timer to send an OFF signal periodically during the unoccupied hours.
- Install wall switches to provide for occupant override. This can be either individual switches connected directly to the relays and/or master switches connected to the scanner.
- The scanner can be set to provide a "Flick Warn before OFF". When a timer signals the scanner OFF, the flick warn sequence occurs. See section titled "FLICK WARN BEFORE OFF" for more details.
- The scanner can also set a "Time Out" period where any lights left ON will be automatically turned off at the end of the period.

**Office Floor -Reflected Ceiling Plan**



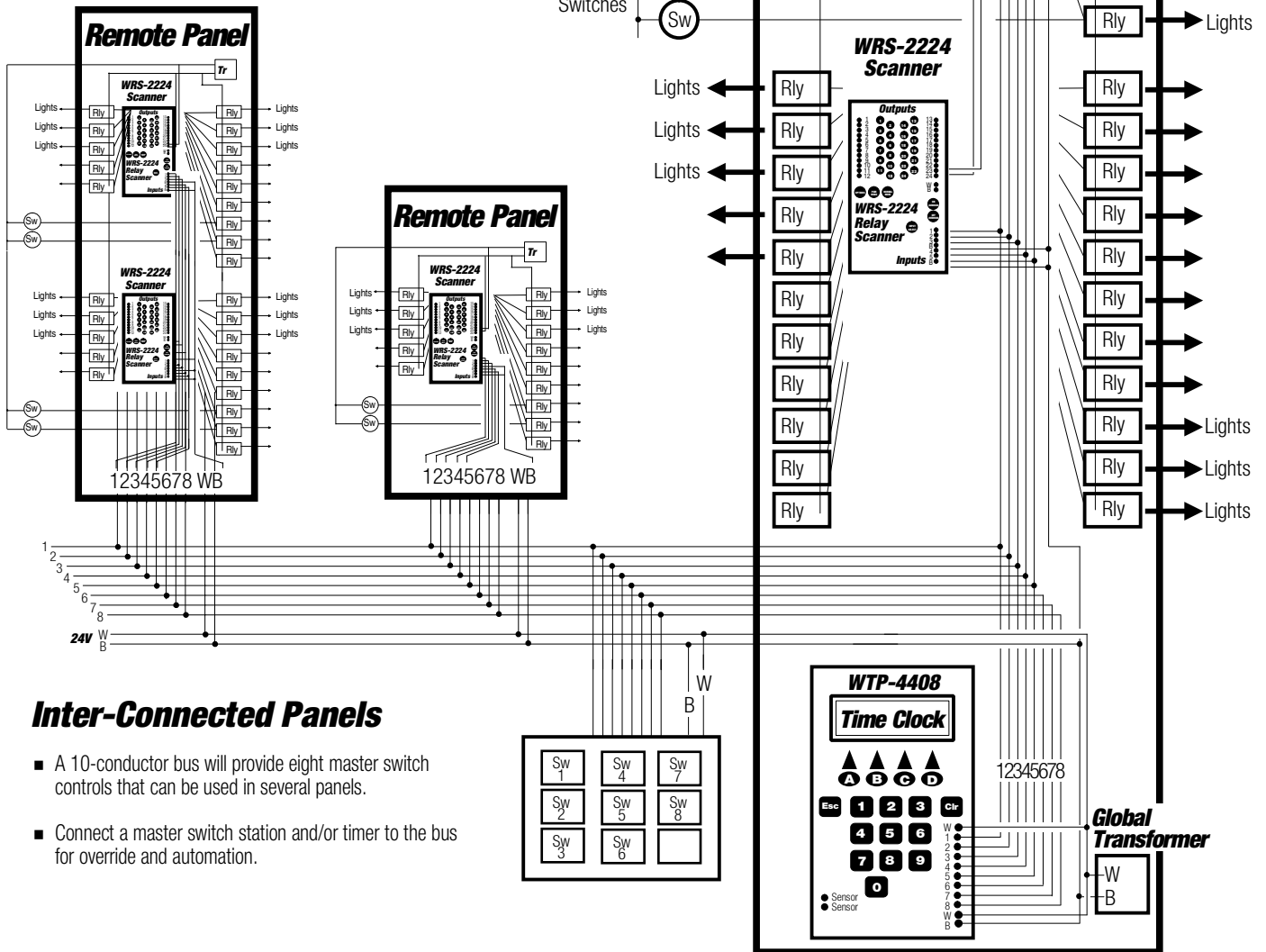
**Relay Panel**



**CONNECTIONS**

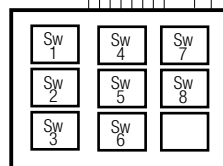
**Multiple Relay Panels**

- In larger buildings, there are often several load centers that need to be controlled from one location.
- A simple wiring strategy is to interconnect the relay panels with a multi-conductor bus. This method permits several master switch controls to exist at each relay panel. Connect the scanners in the relay panel to the appropriate control wire of the bus.
- Projects that are interconnected with a multi-conductor bus should use a separate transformer to supply the power used by the multi-conductor bus. Therefore, the power used in each relay panel to switch the relays is separate from the power used for the master switching circuit. The isolation of the panel power from the signal power is in the relay scanner. All Douglas scanners have optically isolated master switch inputs.
- The WRS-2224 Programmable Relay Scanner can be networked with a data signal to other WRS-2224 Relay Scanners. Please refer to the WNX-2624 Network Node in the LonWorks Products data sheets.



**Inter-Connected Panels**

- A 10-conductor bus will provide eight master switch controls that can be used in several panels.
- Connect a master switch station and/or timer to the bus for override and automation.



## INSTALLATION

- Install programmable relay scanner inside relay panel. Connect all of relays to the relay scanner. If there are more than 24 relays, install additional scanners.
- Connect the master switches, timers or other devices to the relay scanner's inputs.
- After the relays of a panel have been assigned to lighting loads, determine which relays are to be switched together.
- Use the keypad built into the front of the programmable scanner to assign the relay groups for each of the 5 master switches possible. Directions are printed on the scanner for handy reference.
- In programming mode, the display LEDs of the scanner show which relays are included in a group. In normal mode, the LEDs show the state of the connected relay.

## FLICK WARN BEFORE OFF

- The flick warn feature is generally used with automatic timer controls. The timer signals the scanner to turn a relay group OFF. The scanner issues a flick warn so that the occupants have a 5 minute opportunity to cancel the OFF signal.
- Occupants can cancel individual relays from being switched off by flicking them again with a local switch.
- Occupants can cancel the relay group from being switched off by pressing the master switch once. This will not switch the scanner, but will cancel the off signal for the group. Pressing the button again will switch the scanner.
- To select the "flick warn before OFF" function, use the keypad built into the scanner. Each relay group can have its own selection.
- Best results are obtained if occupants are aware of how to disable the OFF sweep after the flick warn. However, even if they are not aware, properly located switch stations will permit occupants to be able to turn the lights back ON.

## Douglas Relay Switches

- The master switch inputs of the programmable relay scanner are compatible with all models of Douglas relay switches.
- A maximum of 6 switches can be connected in parallel to the same switch input. The one-way measure of the wire length should not exceed 2000' (600m) if using 18 AWG wire.
- When connected to a programmable relay scanner, the LEDs of a Douglas led switch will show the state of a relay group. If any of the relays in the group are ON, the group is defined as being ON and the red on LED is lit. Only when all of the relays of a group are OFF is the group defined as being OFF and the green off LED is lit.
- Take care when using WR-8501 LED switches. The WR-8501 push button switch will always send a signal that is opposite to its current state. If repeat OFF or ON control is desired, use the WR-8001 rocker switch which is able to select an ON or OFF signal.

## Douglas Timer Automation

- The master switch inputs of the programmable scanner are compatible with Douglas timers that have relay switching outputs (eg: WTP-4408).

