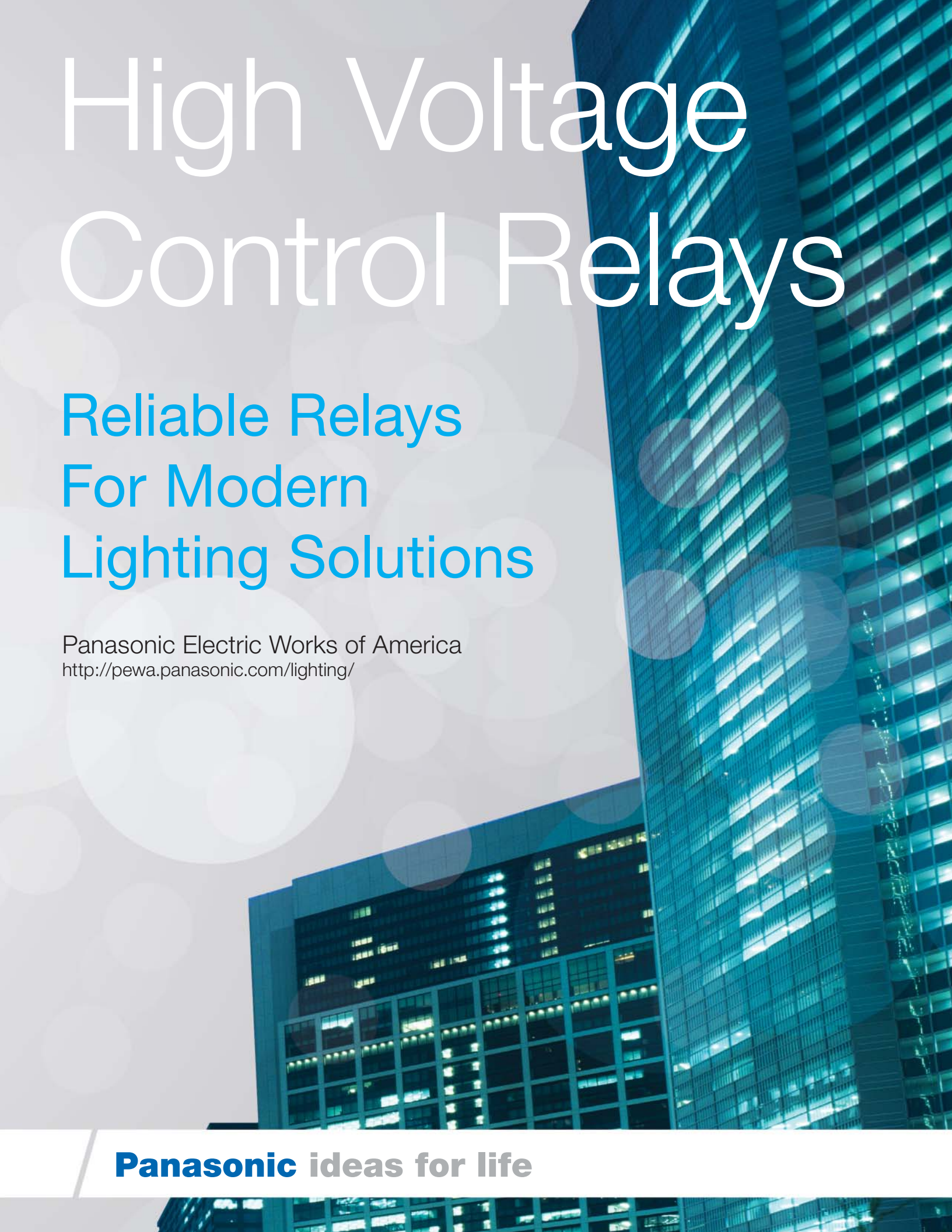
High Voltage Control Relays

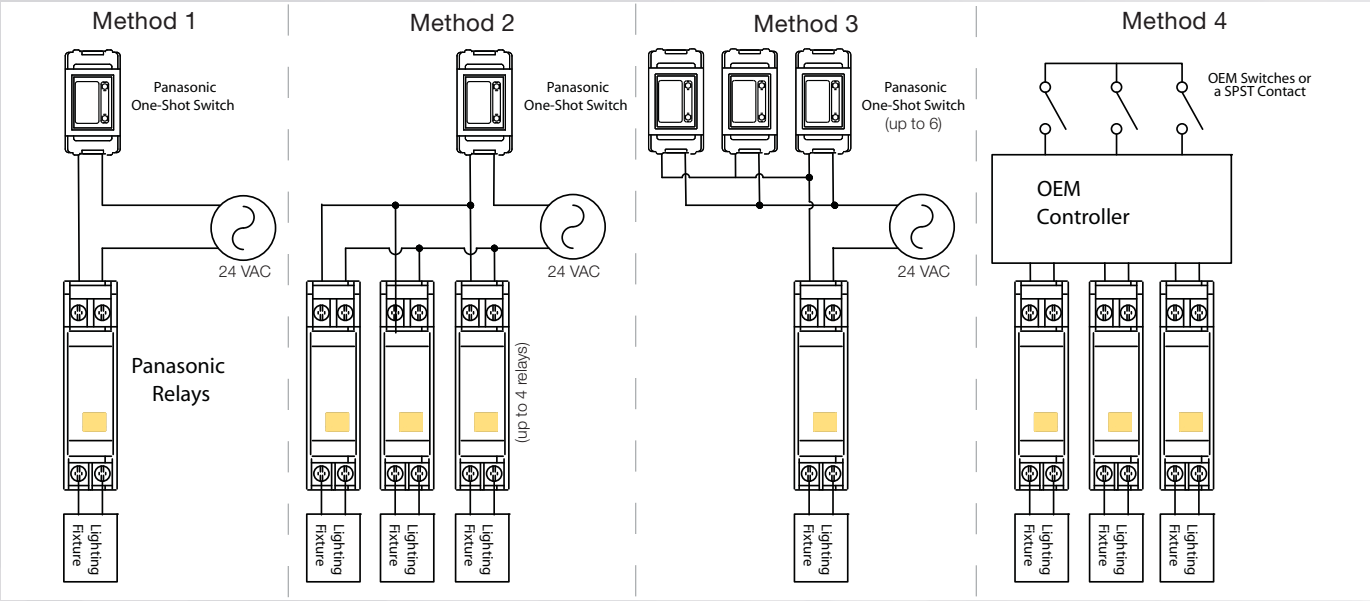
Reliable Relays For Modern Lighting Solutions

Panasonic Electric Works of America
http://pewa.panasonic.com/lighting/



Panasonic ideas for life

Application Examples



Method 1: Individual Control w/ Relay Status Feedback

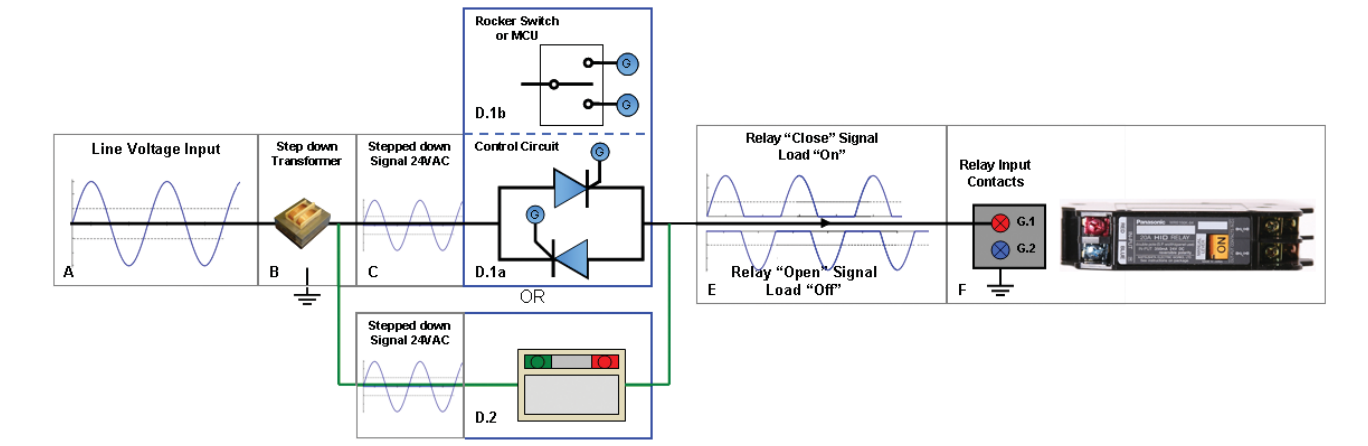
Method 2: Zone Control w/ Relay Status Feedback *

Method 3: Individual Control w/ Multiple Switches

Method 4: OEM Relay Controller

** Status feedback may not reflect actual status of group if all circuits are manually switched at the panel by building maintenance*

Control Signal Design



IMPORTANT: Please follow these steps to ensure proper operation:

A. Introduce the AC Full Sine Wave @ 120/277VAC input from breaker panel.
B. Pass the 120/277VAC through a transformer in order to stepped down to 24-30VAC.
C. This figure shows the stepped down 24-30VAC Full Sine Wave.
D. Control Circuits
   1a. The 24-30VAC signal is fed into a Silicone Controlled Rectifier (SCR) circuit controlled by gate inputs, labeled "G".
   1b. The gates can be connected to a switch or to a micro controller (MCU).
   - We recommend using a surge absorber for control circuit protection.
   - Controller must allow 3 full pulses for relay coil to completely energizing.

   2. A Panasonic One-Shot Switch (WR8501-8 & WR8503-8) may be used as a control circuit.
   - WR8501-8 & WR8503-8 provide control and relay status feedback via two LEDs per switch.

E. Control circuit output is a Half-Wave Rectified Signal that is fed into the Panasonic Relay:
   - For the Relay to completely energize an output of 3 pulses (42ms) is needed.
   - The Relay operating current is approximately 350 mA.

F. Panasonic Relay Low Voltage Control Terminals, Panasonic Recommends:
   1. The Control Circuit output should be connected to the Red terminal of the Panasonic Relay.
   2. Connect the Blue terminal to the transformer ground.
   - Using a varistor between terminal screw inputs is recommended.

The SCRs will regulate the AC wave by blocking opposing current based on component configuration.

Panasonic 20A HID Relays

Panasonic 20A HID relays have been the industry standard for more than a decade. Their durable design provides reliable control for lighting and plugs loads and makes safety a priority.

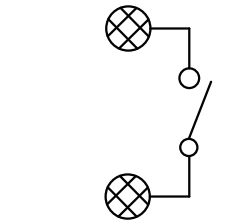
The mechanically latching design requires only a momentary pulse to change its state and requires no energy to maintain its state. The 20A HID relay is also available with an auxiliary contact output for low-voltage status feedback.

For additional functionality, Panasonic relays can be combined with our WR8501-8 or WR8503-8 One-Shot Switches to simplify design and provide both relay control and status feedback in a lighting control system.

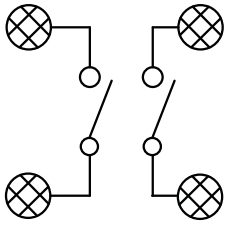
Panasonic Granted UL Electronic Ballast Rating

Electronic ballasts have a high "inrush" (typically 50X to 100X normal operating current) that will damage any connected switching component. The UL Electronic Ballast Rating is given to products that out perform the rigorous testing to withstand the excess inrush current.

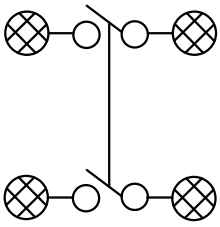
Internal Contact Wiring Diagram



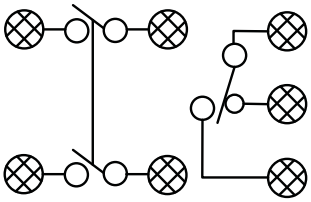
WR6161K-84 has main circuitry only.



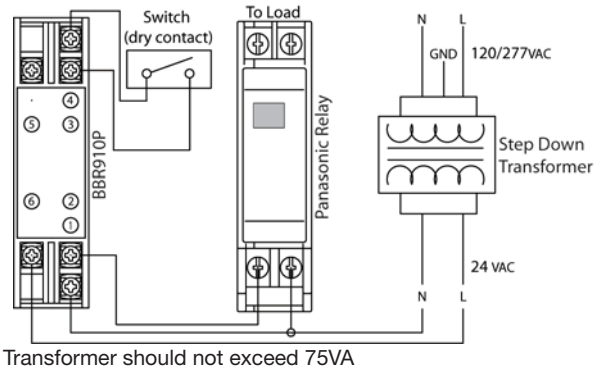
WR61613K-84 has main and auxiliary circuitry.



WR6166-84 and WR6172-84 have main circuitry only.



WR61663-84 and WR61723-84 have main and auxiliary circuitry.



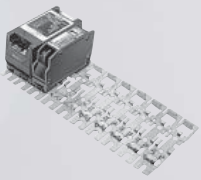
Transformer should not exceed 75VA

WR6161K-84 / WR61613K-84
120/277VAC Single-Pole
20A HID Relay
WR61613K-84 (DIN Rail)
**Electronic Ballast UL Rated*

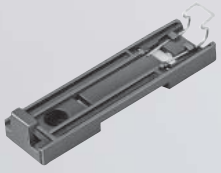
WR6172-84 / WR61723-84
480VAC Double-Pole
20A HID Relay
WR61723-84 (DIN Rail)

WR6166-84 / WR61663-84
120/277VAC Double-Pole
20A HID Relay
WR61663-84 (DIN Rail)

WR9910-8 Mounting Strap
is used to mount relays inside a panel. Each WR9910 Mounting Strap contains a strip of ten individual straps.



WR3990-8 DIN Rail Mount Adapter
is used to mount relays to a standard panel DIN rail



BBR910P Relay Controller
is used to provide control signal to Panasonic Relays via dry contact

Panasonic Relay Contact Output Specifications

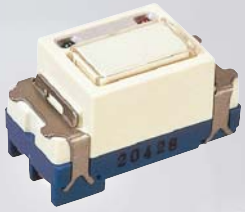
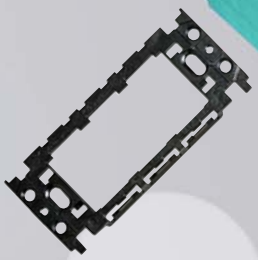
Use Adapter When Mounting On Din Rail (See Accessories)	WR6161K-84	WR6166-84	WR6172-84
Din Rail Mount With Auxiliary Contacts	WR61613K-84	WR61663-84	WR61723-84
UL-Rating: Electrical Life	*Electronic Ballast Rated*		
Output Contact Side :			
General Use	20 A 300 VAC	20 A 300 VAC	20 A 480 VAC
Tungsten	2400 W 120 VAC	2400 W 120 VAC	2400 W 120 VAC
(Standard) Ballast	20 A 300 VAC	20 A 300 VAC	20 A 480 VAC
(Electronic) Ballast	16 A 277 VAC	N/A	N/A
Motor Starting , Single Phase	½ HP 110-125 VAC	½ HP 110-125 VAC	½ HP 110-125 VAC
Motor Starting , Single Phase	1-½ HP 220-277 VAC	1-½ HP 220-277 VAC	1-½ HP 220-277 VAC
Auxiliary Contact Side :			
General Use	1 A 125 VAC	1 A 125 VAC	1 A 125 VAC
Short Circuit Rating	14,000 A 277 VAC	5,000 A 277 VAC	5,000 A 277 VAC
Performance (30,000 cycles)	60,000 operations	60,000 operations	60,000 operations
CSA-Rating: Electrical Life			
OUTPUT contact side:			
General Use	20 A 347 VAC	20 A 347 VAC	20 A 347 VAC
Tungsten	2400 W 120 VAC	2400 W 120 VAC	2400 W 120 VAC
(Standard) Ballast	20 A 347 VAC	20 A 347 VAC	20 A 347 VAC
Motor Starting , Single Phase	½ HP 110-125 VAC	½ HP 110-125 VAC	½ HP 110-125 VAC
Motor Starting , Single Phase	1-½ HP 220-250 VAC	1-½ HP 220-250 VAC	1-½ HP 220-250 VAC
Performance: (30,000 cycles)	60,000 operations	60,000 operations	60,000 operations
Mechanical Life			
Performance Frequency: 20 Cycles (40 Operations)/Min	60,000 cycles (120,000 operations)	60,000 cycles (120,000 operations)	60,000 cycles (120,000 operations)
Dielectric Strength			
Between Terminals: Each OUTPUT (OFF condition) Between Live Parts And Non-live Metal Parts Between Terminals: OUTPUT and AUXILIARY	1,694 VAC for 1 min	1,694 VAC for 1 min	1,960 VAC for 1 min
Between Terminals: OUTPUT and INPUT	2,500 VAC for 1 min	2,500 VAC for 1 min	2,500 VAC for 1 min
Between Terminals: INPUT and non-live metal parts Between Terminals: Each AUXILIARY	600 VAC for 1 min	600 VAC for 1 min	600 VAC for 1 min
Insulation Resistance			
Between Terminals: Each OUTPUT (OFF condition)	10 M Ohm	10 M Ohm	10 M Ohm
Between Terminals: OUTPUT and INPUT	(500 V megger)	(500 V megger)	(500 V megger)
Temperature Rise			
Main contacts	65 max	65 max	65 max

	WR8501	WR8503	BBR910P
Input Voltage	± 24 VAC	± 24 VAC	18 ~ 30 VAC
Current Consumption	.5mA	1.5mA	N/A

Panasonic One-Shot Switches

Panasonic One-Shot Switches provide reliable control and relay status feedback. Each switch incorporates two LED's (red and green) that indicate the relay's current status and when the load status has changed by manually switching the one-shot switch or the manual relay switch.

Each switch provides visual relay status using two LEDs for status indication. When used with a Panasonic relay the indicator LED provides constant and correct status feedback whether the load status has been changed by manually switching the one-shot switch or the manual relay switch.

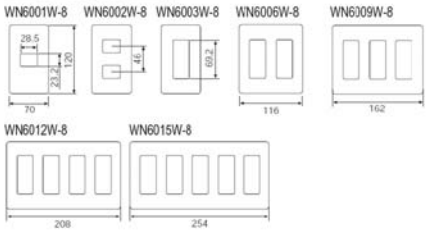
WR8501-8	WR8503-8	WN3710-8	WN3020-8
			
Single Pole Switch	Three-Pole Switch	Switch Mounting Bracket used in a standard electrical box for mounting the WR8503-8 and the WR8501-8 One-Shot switches.	Blank Chip used in conjunction with the WN3710-8 Switch Mounting Strap to fill open spaces.

Switch Plates

WN6001W-8 WN6002W-8 WN6003W-8

Full Color Module Plates Applicable to Switches (White)			
Rows	Gangs	Circuits	Model No. Screwless
1	1	1	WN6001W-8
1	1	2	WN6002W-8
1	1	3	WN6003W-8
1	2	6	WN6006W-8
1	3	9	WN6009W-8
1	4	12	WN6012W-8
1	5	15	WN6015W-8

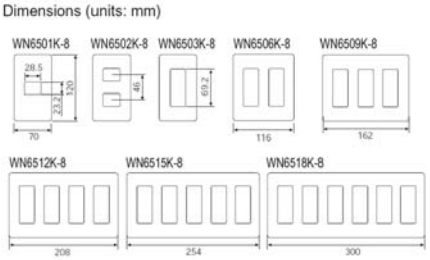
Dimensions (units: mm)



WN6501K-8 WN6502K-8 WN6503K-8

Full Color Module Plates Applicable to Switches (Aluminum)			
Rows	Gangs	Circuits	Model # Screwless
1	1	1	WN6501K-8
1	1	2	WN6502K-8
1	1	3	WN6503K-8
1	2	6	WN6506K-8
1	3	9	WN6509K-8
1	4	12	WN6512K-8
1	5	15	WN6515K-8
1	6	18	WN6518K-8

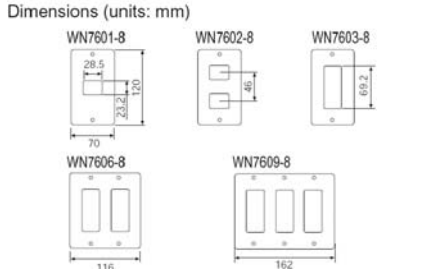
Dimensions (units: mm)



WN7601K-8 WN7602K-8 WN7603K-8

Full Color Module Plates Applicable to Switches (Stainless Steel)			
Rows	Gangs	Circuits	Model No.
1	1	1	WN7601-8
1	1	2	WN7602-8
1	1	3	WN7603-8
1	2	6	WN7606-8
1	3	9	WN7609-8

Dimensions (units: mm)



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Please review technical specifications before purchase.
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