

〈Thyristor-type Single-phase Power Regulator〉

THYRISTOR POWER REGULATOR TRV1-C/PW series



TRV1-C /PW series is a small-size, low-cost power regulator with high package density.

Available Control Mode: Cycle control and phase control by analog input signal and external volume.

Features

- Slimmer body with a width of 21.5mm (15A and 25A have the same shape)
- Cycle control and phase control mode are available to meet the requirement of the user
- Built-in output protective element minimizes external surge and malfunction
- It adopts a connector for close mounting
- Terminal protective cover for safety
- Easy to attach the product to DIN rail
- Built-in Soft Up/Down Function
- It outputs the input signal as power in linear form
- Automatic frequency detection function

Specifications

Item	TRV1-C-015	TRV1-C-025	TRV1-PW-015	TRV1-PW-025
Control Mode	Cycle Control		Phase Control	
Maximum Input Current	24mA DC			
Maximum Load and Power-supply Voltage	264V AC rms			
Maximum Load Current	15A AC rms	25A AC rms	15A AC rms	25A AC rms
1 Cycle Surge ON Current	146A(50Hz) 150A(60Hz)	250A(50/60Hz)	146A(50Hz) 150A(60Hz)	250A(50/60Hz)
Insulation Resistance	100MΩ or higher (500V DC) ^{※1}			
Voltage Endurance	2,500V AC rms or higher (1 minute) (Rh = 40 to 60%) ^{※1}			
Working Ambient Temperature	-20 to +60°C (without freezing and condensation)			
Storage Temperature	-30 to +70°C (without freezing and condensation)			

※1 Between (Input+Vol)-Output-Case

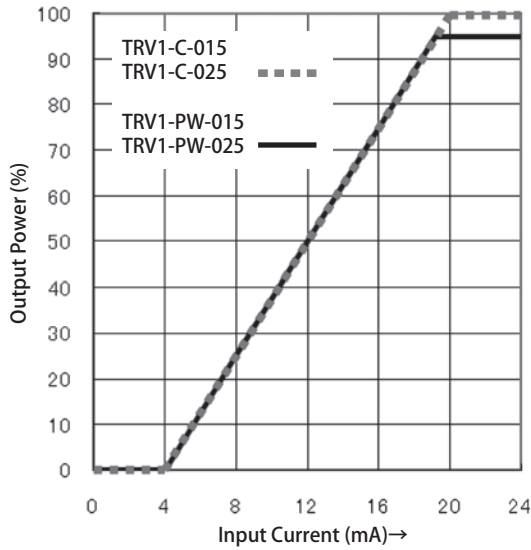
Item	TRV1-C-015	TRV1-C-025	TRV1-PW-015	TRV1-PW-025
Input Impedance	250Ω ±20%			
Input Movement Current Range	4 to 20mA DC			
Range of Load and Power	85 to 264V AC rms (Sinewave)			
Range of Load Current	0.1 to 15A AC rms ^{※2}	0.1 to 25A AC rms ^{※2}	0.1 to 15A AC rms ^{※2}	0.1 to 25A AC rms ^{※2}
Voltage Drop During Output ON	1.5V AC rms or less (at maximum power output)		3.0V AC rms or less (at maximum power output)	
Leakage Current at Output OFF	9mA AC rms or lower (load voltage of 200V rms, 60Hz)			
Power Adjustment Range	0 to 100%		0 to 95%	
Response Time	-		One cycle or less (without soft start) ^{※3}	
Load Power Voltage Frequency Range	50Hz/60Hz (automatic switching)			
	47 to 53Hz/57 to 63Hz			
Consumption Current	Analog Input			
	If Volume Is Used			
Soft Up and Down Time ^{※3}	Approx. 0.5 to 40s		Approx. 0.5 to 13s	
Weight	Approx. 260g			

※2 Conduction angle will get narrow under fine current load. Please check the actual usage with the actual unit.

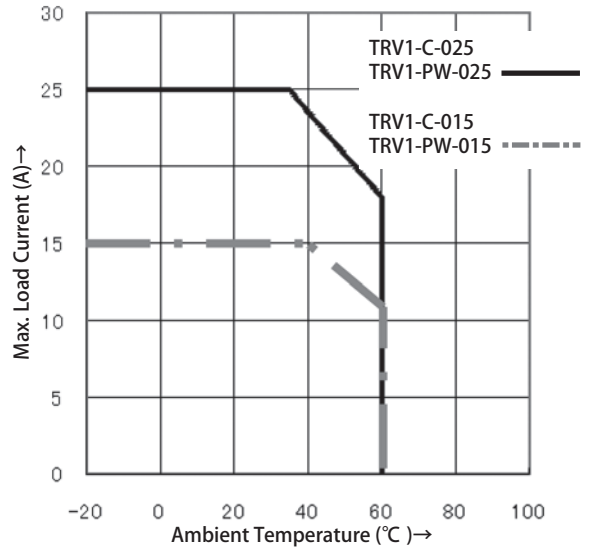
※3 Turn the top face volume clockwise to maximize and turn it counterclockwise to minimize. (Standard value indicates the transit time between 0% and 100% .)

Output Characteristic Diagram

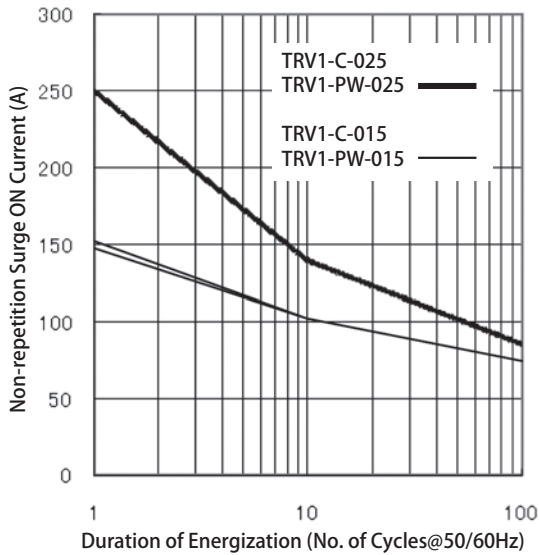
Input Current-Output Power Characteristic



Load Current Characteristic

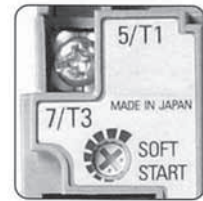


Surge Current Rated Value

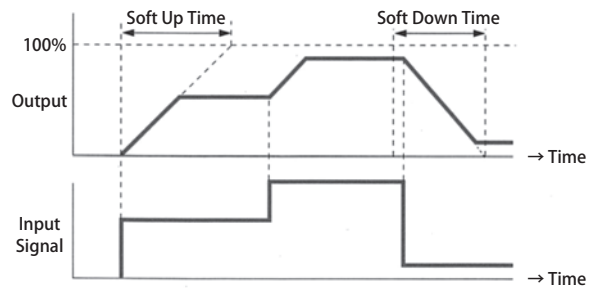


Soft Up and Soft Down Functions

This limits the sudden change in output power by changing the output gradually whenever the input setting changes.



● Soft Up/Soft Down Movement Diagram



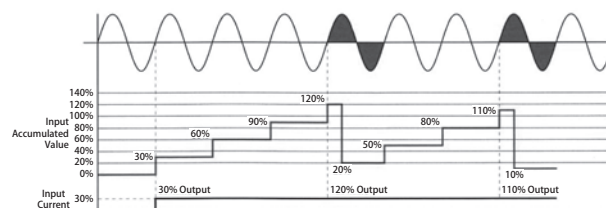
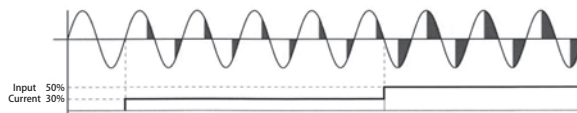
TRV1-PW Type (Phase Control Mode)

The phase control-type power regulator reads the analog value per half-cycle of AC and reflects it to the said cycle. (It has an excellent response characteristic.)

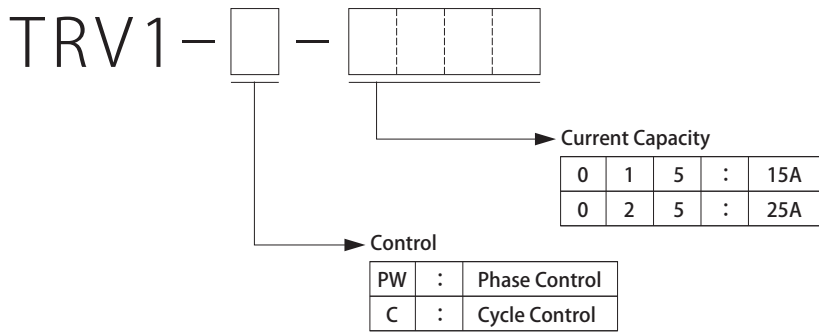
TRV1-C Type (Cycle Control Mode)

The cycle control-type power regulator reads the instruction value of the input per AC cycle to determine if the said cycle is to be turned ON or OFF.

Because of this feature, conflicting characteristic of both the "High-Speed Input Responsiveness" and the "Enabling to control without leaving any margin of error even if the indication value of the input varies" have been realized. Furthermore, the product has a very stable cycle control since it does not adopt a time-sharing system (e.g., determine the number of ONs in 100 cycles).

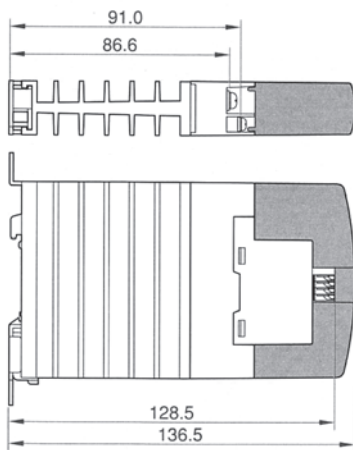


Basic Model Configuration of Power Regulator

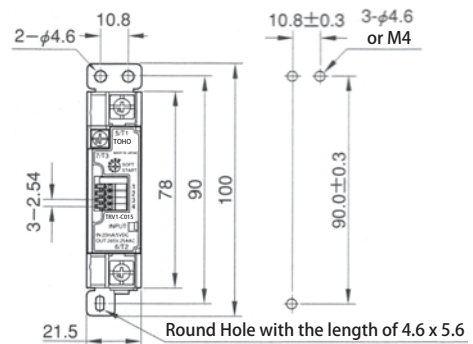


Dimensional Outline Drawing and Installation Diagram

TRV1 Dimensional Outline Drawing

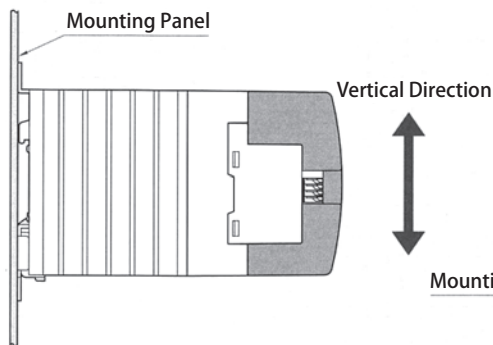


Panel Cut - out Diagram



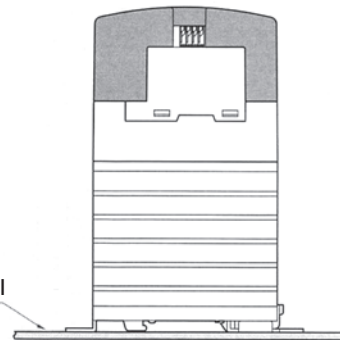
TRV1 Installation Diagram

Vertical Installation



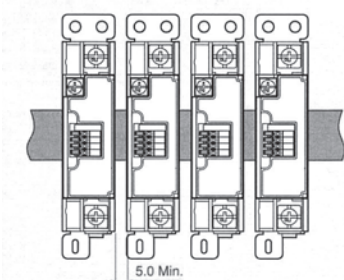
- Attach the product in a direction where the item name can be read properly.

Horizontal Installation



- Use the product within 70% of the rated load current.

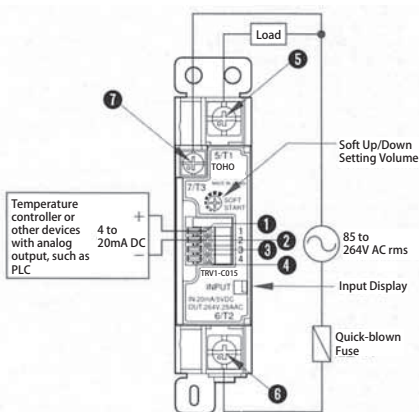
TRV1 Installation Spacing Diagram



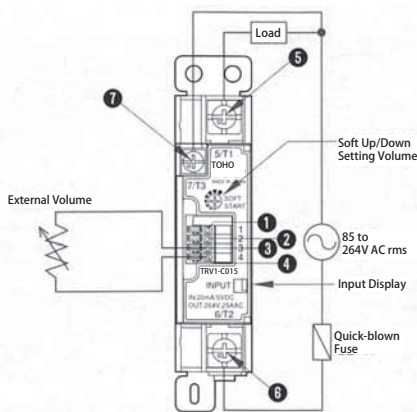
- Use the product with around 80% of the rated load current if the product is attached with a spacing of 5mm as shown above.

Example of Wiring

Sample Connection with Temperature Controller



Sample Adjustment Using External Volume



- ①: Input Terminal (+)
- ②: Input Terminal (-)
- ③: Volume Terminal (1)
- ④: Volume Terminal (2)
- ⑤: Output Terminal (T1)
- ⑥: Output Terminal (T2)
- ⑦: Power Terminal (T3)

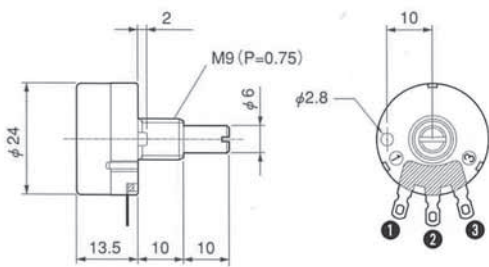
※ Upon connecting the load, always connect one side of the load to the terminal ⑤.
Do not connect the load between terminals ⑥ and ⑦.

Optional Parts (Sold Separately)

■ Volume (Manual setting device)

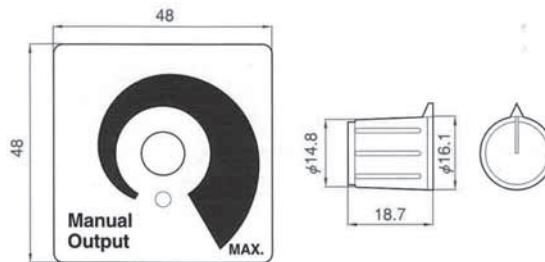
- VOL-202-15C-20 (Set of volume, name plate and knob)

(Unit: mm)



Volume

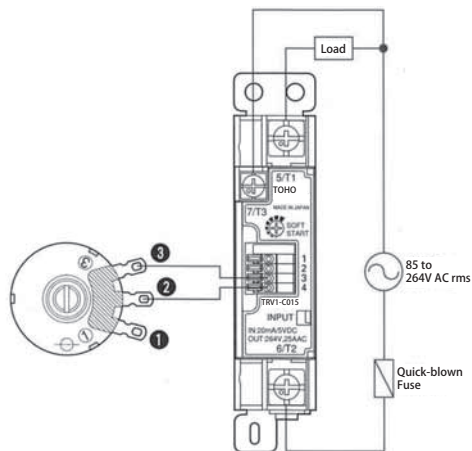
(Resistance: 2KΩ, Resistance variation character: 15C)



Name Plate

Knob

■ Wiring Diagram



■ Output Power (Reference Value) by Rotation Angle

