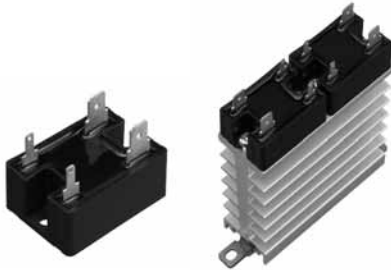


**Load current 10 to 25 A
Small Tab Terminal SSR**

AQ-J RELAYS



Slim heat sink combined type

RoHS compliant

FEATURES

- 1. Compact Size**
W 28 × L 38 × H 30 mm
W 1.102 × L 1.496 × H 1.181 inch
- 2. Built-in varistor**
- 3. Reverse input connection prevention function**
- 4. Labor Saving (tab terminal)**
- 5. Heat sink combined types ready to mount on DIN rail added (Radiating grease and screws assembly process not needed)**
- 6. Output arrangement 1 Form A and 1 Form A × 2 available in the heat sink combined type**

Note: * International standards are acquired for AQ-J SSR stand-alone, not applied to heat sink combined type.

TYPICAL APPLICATIONS

- 1. Kitchen appliances**
- 2. Vending machine**
- 3. Injection molding machine**
- 4. Packing machine**
- 5. Amusement machine**

ORDERING INFORMATION

AQJ

Output type
1: 10 A, 75 to 264 Vrms
2: 15 A, 75 to 264 Vrms
4: 25 A, 75 to 264 Vrms

Terminal, Type
1: Tab terminal, Zero-cross
2: Tab terminal, Random*

Control voltage
2: 4 to 6 V DC
6: 18 to 28 V DC
9: 10 to 18 V DC

Functions
V: Built-in varistor

Slim heat sink combined type
None: Without a heat sink
Y: 1 Form A type
W: 1 Form A × 2 type

Note: * Random type is available by custom order.

TYPES

1. AQ-J Solid State Relays

| Type | Load current | Load voltage | Control voltage | Part No. |
|-------------|--------------|----------------|-----------------|----------|
| Zero-cross* | 10 A | 75 to 264 Vrms | 4 to 6V DC | AQJ112V |
| | | | 10 to 18V DC | AQJ119V |
| | | | 18 to 28V DC | AQJ116V |
| | 15 A | | 4 to 6V DC | AQJ212V |
| | | | 10 to 18V DC | AQJ219V |
| | | | 18 to 28V DC | AQJ216V |
| | 25 A | | 4 to 6V DC | AQJ412V |
| | | | 10 to 18V DC | AQJ419V |
| | | | 18 to 28V DC | AQJ416V |

Standard Packing: carton: 10 pcs., case: 200 pcs.

Note: Random type also available. Please contact our sales office.

2. AQ-J Slim Heat Sink Combined Type

| Output configuration | Type | Load current | Load voltage | Control voltage | Part No. |
|----------------------|------------------------|------------------------|----------------|-----------------|----------|
| 1 Form A | Zero-cross* | 10 A | 75 to 264 Vrms | 4 to 6 V DC | AQJ112VY |
| | | | | 10 to 18 V DC | AQJ119VY |
| | | | | 18 to 28 V DC | AQJ116VY |
| 1 Form A × 2 | | 10 A (per 1 Form A) | | 4 to 6 V DC | AQJ412VY |
| | | | | 10 to 18 V DC | AQJ419VY |
| | | | | 18 to 28 V DC | AQJ416VY |
| 1 Form A × 2 | 15 A (per 1 Form A) | 4 to 6 V DC | AQJ112VW | | |
| | | 10 to 18 V DC | AQJ119VW | | |
| | | 18 to 28 V DC | AQJ116VW | | |
| | | | | 4 to 6 V DC | AQJ412VW |
| | | | | 10 to 18 V DC | AQJ419VW |
| | | | | 18 to 28 V DC | AQJ416VW |

Standard Packing; no carton, case: 10 pcs.
 Note: * Random type also available. Please contact our sales office.

3. Accessories

| Type | Part No. | Packaged quantity |
|---|--------------|------------------------------|
| Slim heat sink (28 mm wide) (Mountable on a DIN rail) | AQP-HS-SJ10A | No carton, 10 in a case |
| Slim heat sink (45 mm wide) (Mountable on a DIN rail) | AQP-HS-SJ20A | No carton, 8 in a case |
| Standard heat sink (10 A and 15 A) | AQP-HS-J10A | 5 in a carton, 20 in a case |
| Standard heat sink (25 A only) | AQP-HS-J25A | No carton, 5 in a case |
| DIN rail mounting plate | AQP-DPJ | No carton, 50 in a case |
| Mounting rail | AT8-DLA1 | 1 in a carton, 100 in a case |
| Fastening plate | AT8-DLE | 1 in a carton, 200 in a case |

RATING

1. Ratings (Test sample: AQ-J stand-alone, Measurement condition: at 20°C 68°F, input ripple: 1% or less)

| Item | Part No. | AQJ112V AQJ212V AQJ412V | AQJ119V AQJ219V AQJ419V | AQJ116V AQJ216V AQJ416V | Remarks |
|-------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------------|
| Input side | Rated voltage | 5 V DC | 12 V DC | 24 V DC | *1 |
| | Control voltage | 4 to 6 V DC | 10 to 18 V DC | 18 to 28 V DC | |
| | Input impedance | Approx. 0.26 kΩ | Approx. 0.8 kΩ | Approx. 1.6 kΩ | |
| | Drop-out voltage | Min. 1 V DC | | | |
| Output side | Max. load current | 10 A*2 | 15 A*2 | 25 A*2 | |
| | Load voltage | 75 to 264 Vrms | | | |
| | Frequency | 45 to 65 Hz | | | |
| | Non-repetitive surge current | 100 A*3 | 150 A*3 | 250 A*3 | In one cycle at 60 Hz |
| | "OFF-state" leakage current | Max. 5 mA | | | |
| | "ON-state" voltage drop | Max. 1.6 V | | | |
| | Min. load current*4 | 50 mA | | | |

Notes: *1. Refer to REFERENCE DATA "3. Input current vs. input voltage characteristics".
 *2. Refer to REFERENCE DATA "1. Load current vs. ambient temperature".
 *3. Refer to REFERENCE DATA "2. Non-repetitive surge current vs. carrying time".
 *4. When the load current is less than the rated minimum load current, please refer to "Cautions for Use of Solid State Relays".

2. Ratings (AQ-J slim heat sink combined type, Measurement condition: at 20°C 68°F, input ripple: 1 % or less)

| Item | Part No. | AQJ112V(Y-W) AQJ412V(Y-W) | AQJ119V(Y-W) AQJ419V(Y-W) | AQJ116V(Y-W) AQJ416V(Y-W) | AQJ412VW AQJ419VW AQJ416VW | Remarks |
|---------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|-----------------------|
| Input side | Rated voltage | 5 V DC | 12 V DC | 24 V DC | | *1 |
| | Control voltage | 4 to 6 V DC | 10 to 18 V DC | 18 to 28 V DC | | |
| | Input impedance | Approx. 0.26 kΩ | Approx. 0.8 kΩ | Approx. 1.6 kΩ | | |
| | Drop-out voltage | Min. 1 V DC | | | | |
| Output side | Output arrangement | 1 Form A | | 1 Form A × 2 | | |
| | Max. load current | 10 A*2 | 20 A*2 | 10 A*2 | 15 A*2 | |
| | Load voltage | 75 to 264 Vrms | | | | |
| | Frequency | 45 to 65 Hz | | | | |
| | Non-repetitive surge current | 100 A*3 | 250 A*3 | 100 A*3 | 250 A*3 | In one cycle at 60 Hz |
| | "OFF-state" leakage current | Max. 5 mA | | | | |
| | "ON-state" voltage drop | Max. 1.6 V | | | | |
| Min. load current*4 | 50 mA | | | | | |

Notes: *1. Refer to REFERENCE DATA "3. Input current vs. input voltage characteristics".
 *2. Refer to REFERENCE DATA "1. Load current vs. ambient temperature".
 *3. Refer to REFERENCE DATA "2. Non-repetitive surge current vs. carrying time".
 *4. When the load current is less than the rated minimum load current, please refer to "Cautions for Use of Solid State Relays".

3. Characteristics (Measurement condition: at 20°C 68°F, input ripple: 1% or less)

| Item | Characteristics | Remarks |
|-----------------------|--|------------------------------------|
| Operate time | Max. 1/2 cycle of voltage sine wave + 1 ms | |
| Release time | Max. 1/2 cycle of voltage sine wave + 1 ms | |
| Insulation resistance | Min. 100 MΩ between input, output and case | at 500 V DC |
| Breakdown voltage | 3,000 Vrms between input and output 2,500 Vrms between input, output and case | for 1 minute |
| Vibration resistance | SSR stand-alone: 10 to 55 Hz, double amplitude of 1.5 mm Slim heat sink combined type: 10 to 55 Hz, double amplitude of 0.75 mm | X, Y, Z axes |
| Shock resistance | SSR stand-alone: Min. 980 m/s ² Slim heat sink combined type: Min. 197 m/s ² | X, Y, Z axes |
| Ambient temperature | -30 to +80°C -22 to +176°F | Non-condensing at low temperatures |
| Storage temperature | -30 to +100°C -22 to +212°F | Non-condensing at low temperatures |
| Operational method | Zero-cross (Turn ON and Turn OFF) | |

REFERENCE DATA

(1) AQ-J Solid State Relays

1. Load current vs. ambient temperature

Tested condition:

- If attached to a heat sink, use a heat conductive compound (Ex. Momentive Performance Materials Inc. YG6111 or TSK5303) of similar coating to improve cooling
- Without external heat sink
If the mounting surface is not metallic and a heat sink is not used, expose the bottom surface and plate surface to improve heat dissipation.

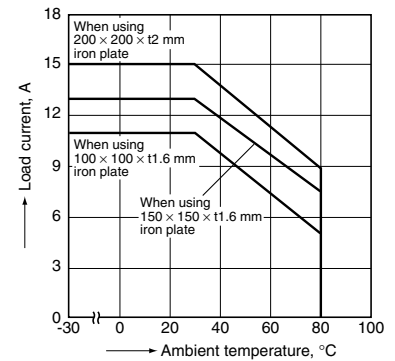
3) The current value is per 1a.

| | |
|-----------------------------|--------------|
| (A) slim heat sink | AQP-HS-SJ20A |
| (B) slim heat sink | AQP-HS-SJ10A |
| (C) standard heat sink | AQP-HS-J10A |
| (D) DIN rail mounting plate | AQP-DPJ |
| (E) standard heat sink | AQP-HS-J25A |

Use load current within range specified in the figure below

(1) 10 A type (when using heat sink or iron plate)

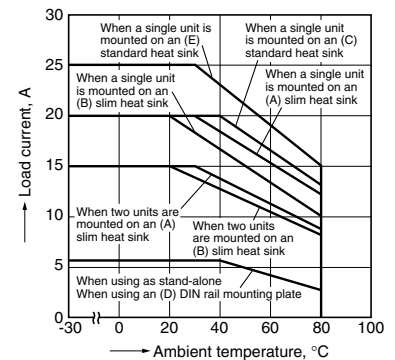
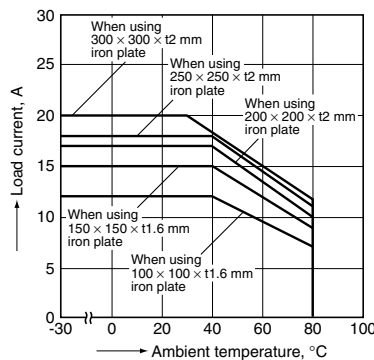
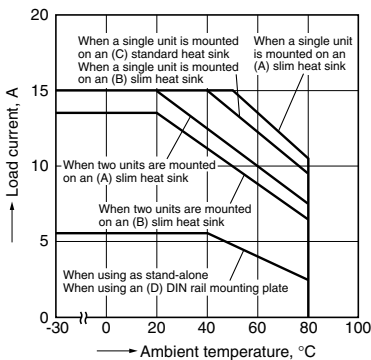
(2)-1. 15 A type (when using iron plate)



(2)-2. 15 A type (when using a heat sink)

(3)-1. 25 A type (when using iron plate)

(3)-2. 25 A type (when using a heat sink)



2. Non-repetitive surge current vs. carrying time*



3. Input current vs. input voltage characteristics

(10 A, 15 A and 25 A common)



Note: * The above chart shows non-repetitive maximum rating. If a surge current is applied repeatedly, please keep it approximately 50% or less than the values shown in the above graph.

(2) AQ-J Slim Heat Sink Combined Type

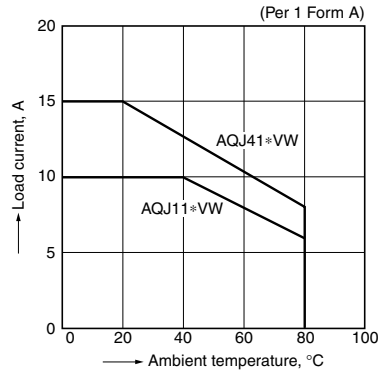
1. Load current vs. ambient temperature characteristics

(1) Output arrangement: 1 Form A



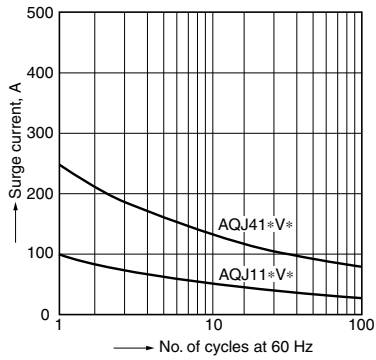
Use load current within range specified in the figure below

(2) Output arrangement: 1 Form A × 2

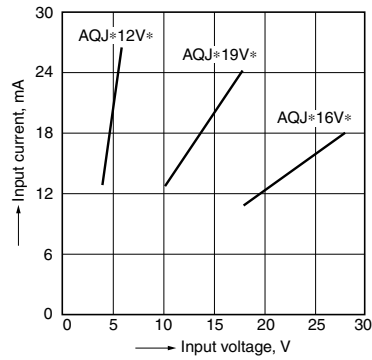


Note:
When two contacts are operated simultaneously.
In the case of a single-contact operation, the rating of
(1) AQJ11*VY, AQJ41*VY applies.

2. Surge current vs. carrying time characteristics*



3. Input current vs. input voltage characteristics



Note: * The above chart shows non-repetitive maximum rating. If a surge current is applied repeatedly, please keep it approximately 50% or less than the values shown in the above graph.

DIMENSIONS (mm inch)

The CAD data of the products with a **CAD** mark can be downloaded from: <https://industrial.panasonic.com/ac/e/>

1. AQ-J Stand Alone

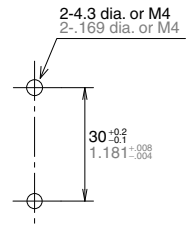
CAD



External dimensions



Mounting dimensions



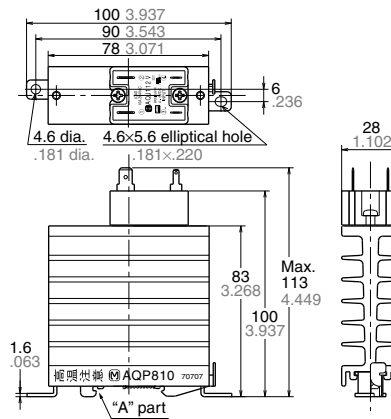
General tolerance: $\pm 1.0 \pm .039$

2.-(1) AQ-J Slim Heat Sink Combined Type Output Arrangement: 1 Form A

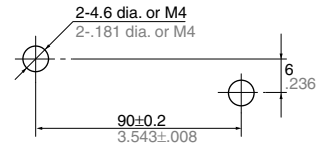
CAD



External dimensions



Mounting dimensions (Top view)



Note: When using on a DIN rail, please install so that the "A" part is on top.

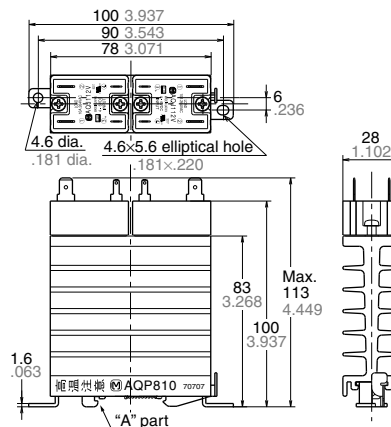
General tolerance: $\pm 1.0 \pm .039$

2.-(2) AQ-J Slim Heat Sink Combined Type Output Arrangement: 1 Form A x 2

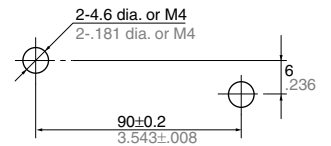
CAD



External dimensions



Mounting dimensions (Top view)



Note: When using on a DIN rail, please install so that the "A" part is on top.

General tolerance: $\pm 1.0 \pm .039$

ACCESSORIES (mm inch)

AQP-HS-SJ10A Slim Heat Sink

CAD



Note: When using on a DIN rail, please install so that the "A" part is on top.

External dimensions



Mounting dimensions (Top view)



General tolerance: $\pm 1.0 \pm .039$

AQP-HS-SJ20A Slim Heat Sink

CAD



Note: When using on a DIN rail, please install so that the "A" part is on top.

External dimensions



Mounting dimensions (Top view)



General tolerance: $\pm 1.0 \pm .039$

AQP-HS-J10A Standard Heat Sink (for 10 A and 15 A types)

CAD

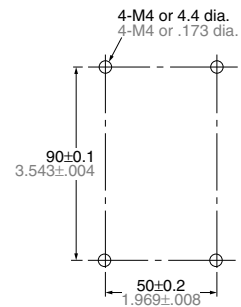


Note: When using on a DIN rail, please install so that the "A" part is on top.

External dimensions



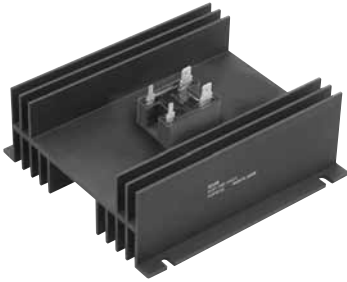
Mounting dimensions



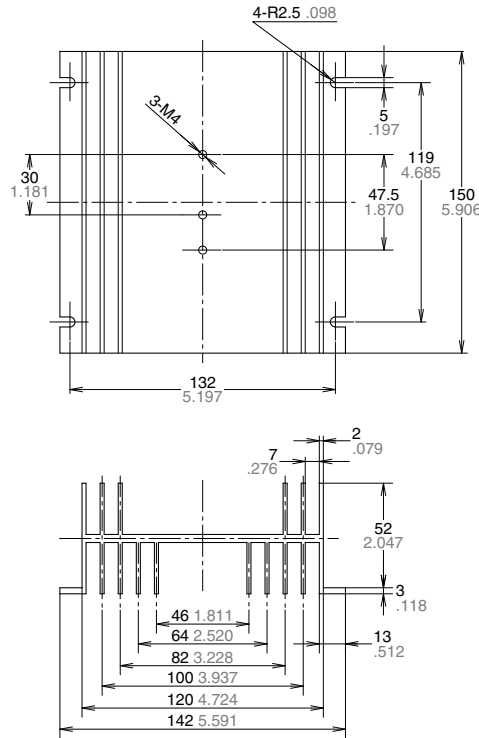
General tolerance: $\pm 1.0 \pm .039$

**AQP-HS-J25A Standard Heat Sink
(for 25 A type)**

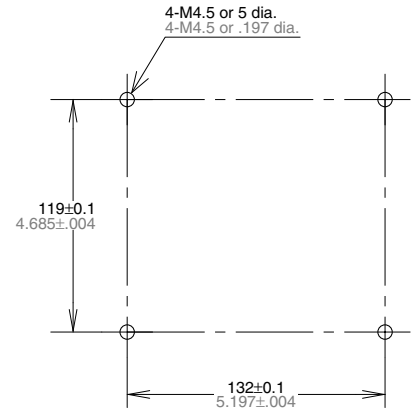
CAD



External dimensions



Mounting dimensions



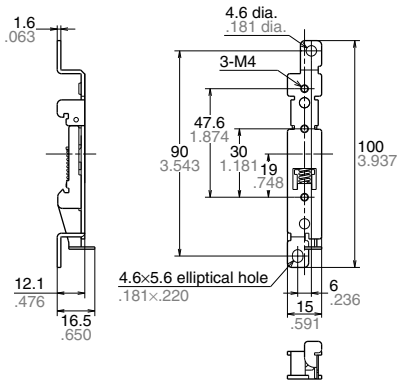
General tolerance: $\pm 1.0 \pm .039$

AQP-DPJ DIN Rail Mounting Plate

CAD



External dimensions



General tolerance: $\pm 1.0 \pm .039$

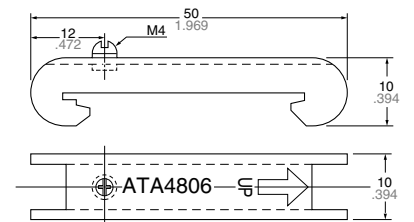
AT8-DLA1 Mounting rail

CAD

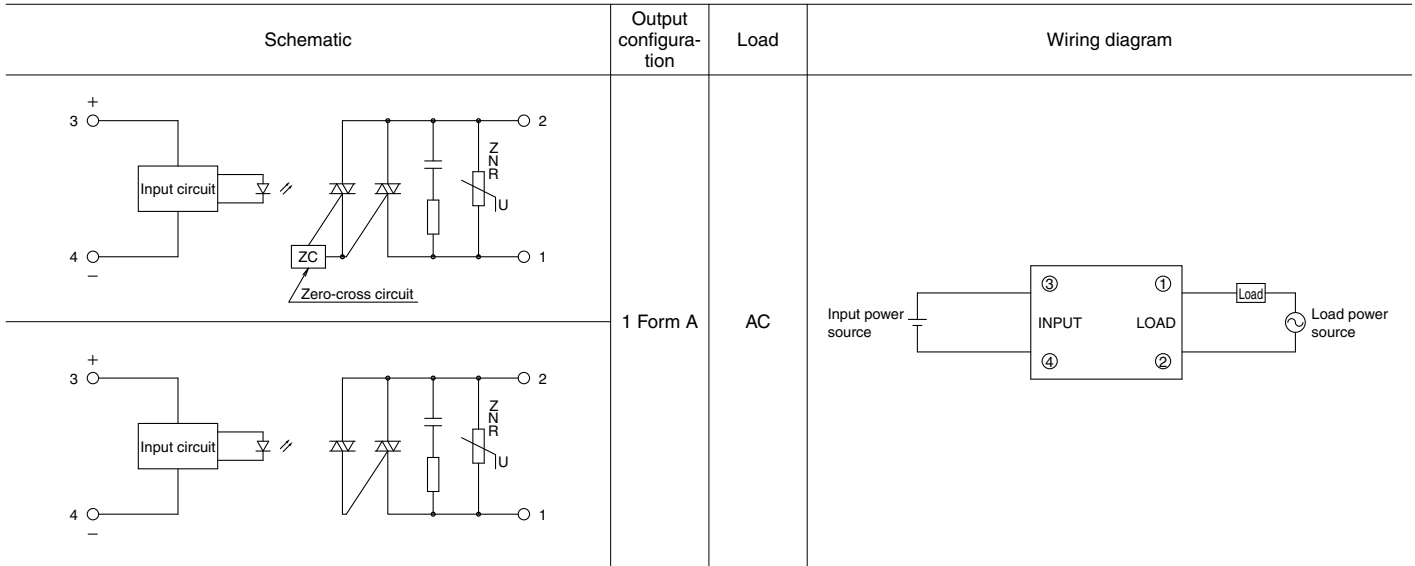


AT8-DLE Fastening plate

CAD



SCHEMATIC AND WIRING DIAGRAMS



NOTES

1. Part number indication

The AQ-J slim heat sink combined type is a product combining the AQ-J SSR and AQ-J SSR heat sinks. The part numbers are indicated on each AQ-J SSR and heat sink.

Ex) In the case of AQJ112VY

Part number of AQ-J SSR: AQJ112V

Part number of the heat sink: AQP810*

When using these parts, please refer to REFERENCE DATA, "1. Load current vs. ambient temperature".

Note: * The Japanese part number is printed on the following accessories in stead of Global part number. Please refer to the below chart for interpretation from Japanese to Global part number.

| Products | Japanese Part No. | Global Part No. | Compatible models |
|---|-------------------|-----------------|-------------------|
| Slim heat sink (28 mm) | AQP810 | AQP-HS-SJ10A | AQ-J |
| Slim heat sink (45 mm) | AQP812 | AQP-HS-SJ20A | AQ-A, AQ-J |
| Standard heat sink (10 A and 15 A) | AQP811 | AQP-HS-J10A | AQ-A, AQ-J |
| Standard heat sink (25 A and 40 A) | AQP808 | AQP-HS-J25A | AQ-A, AQ-J |
| Standard heat sink (AQ-A 25 A) | AQP804 | AQP-HS-30/40A | AQ-A |
| DIN Rail Mounting Plate (for AQ-A and AQ-J) | AQP809 | AQP-DPJ | AQ-A, AQ-J |
| Mounting Rail | ATA48011 | AT8-DLA1 | AQ-A, AQ-J |
| Terminal Cover (for AQ-A) | AQA801 | AQA801 | AQ-A |

Recommended Temperature Controllers



<KT4H Temperature Controller>

Our temperature controller is recommended for use with our Solid State Relays.

Features

- Space saving requiring only a depth of 65 mm
- Data collection possible through a PLC using RS485 communication
- Tool port is standard for easy data setting
- Inverted LCD + backlight for good legibility with large characters
- Excellent operability and rich optional control functions

Substitute part numbers

| Power supply | Control output | Part No. |
|-----------------|----------------------------|-------------|
| 100 to 240 Vrms | Non-contact voltage output | AKT4H112100 |

* For detailed product information about temperature controllers, please refer to our website: <https://industrial.panasonic.com/ac/e/>

Please contact

Panasonic Corporation

Electromechanical Control Business Division

■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan
industrial.panasonic.com/ac/e/

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