



RELAYS & CONTACTORS

IDEC SOLID STATE RELAY

RSSDN

DESCRIPTION

The **IDEC Model RSSDN** is a photo-isolated solid state relay. The 4-32 VDC input voltage allows the relay to be used on analog or digital outputs. While solid-state relays provide reliable switching and long-life operation, careful application is required as excessive temperature, high inrush currents, or induced currents can affect solid state relay operation.

FEATURES

- Photo isolation
- 4000V optical isolation
- Zero voltage turn-on
- Input status LED
- High surge capability
- Dual SCR output



RSSDN

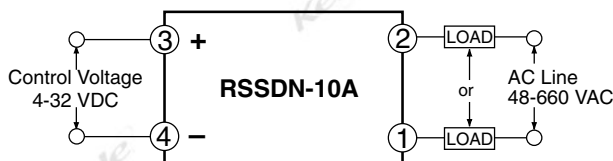


SPECIFICATIONS

| | |
|-----------------------------|---------------------------------|
| Input Current | Regulated 10 mA |
| Frequency Range | 47-80 Hz |
| Pick Up Voltage | 4 VDC |
| Drop Out Voltage | 1 VDC |
| Voltage Range | 4-32 VDC |
| Contact Type | 1 Form A, SPST-N.O. |
| Off State Leakage | 20 mA @ rated voltage (maximum) |
| Minimum Current | |
| 10A, 25A models | (Holding) 50 mA, |
| 50A, 75A, 90A models | (Holding) 100 mA |
| Output Current Limit | 10 A, 25 A, 50 A, 75 A, 90 A |
| Output Voltage | 48-660 VAC |
| Over Voltage Rating | 1200 PIV |
| Voltage Drop | 1.6V (maximum) @ rated current |
| Capacitance | 8 pF |

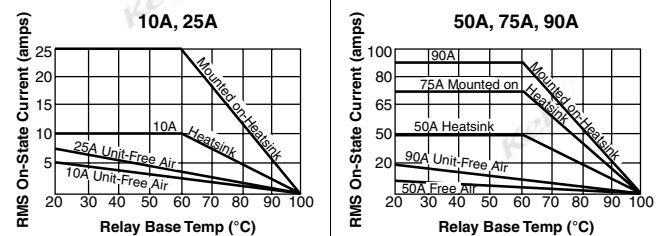
| | |
|-----------------------------------|---|
| Dielectric Strength | 4000 rms minimum |
| Surge Current | 1-Cycle 150A, 1-Second 30A, 1-Cycle 300A, 1-Second 75A, 1-Cycle 750A, 1-Second 150A |
| Reverse Voltage Protection | Yes (-32 VDC) |
| Zero Voltage Switching | Yes |
| Turn Off Time | 1/2 cycle @ 60 Hz |
| Turn On Time | 1/2 cycle @ 60 Hz |
| Dimensions | 2.25" H x 1.75" W x 0.95" D (5.72 x 4.45 x 2.41 cm) |
| Approvals | UL-recognized component, File #E194577: CE certified |
| Weight | 0.22 lb (0.10 Kg) |
| Warranty | 1 year |

WIRING



Observe the polarity of input terminals. Failure to do so may cause damage to the solid-state relays.

FIGURE 1. CURRENT DERATING CURVES





INSTALLATION

- Install solid-state relays in dry, well-ventilated areas away from excessive heat.
- Use #6-32 screws, flat washers, and lock washers to secure mounting on heat sinks.
- Vertical mounting is recommended to allow air to flow unimpeded.
- A small-capacity load may not turn off due to the leakage current present after the solid-state relay has turned off. In this case, use a resistor in parallel with the load to shunt the leakage current.
- When the input signal contains a ripple voltage, the lowest ripple amplitude should exceed the minimum pick-up voltage of 4V.

Heat sinks are required to achieve the full output current rating. The recommended heat sink dimensions and materials are shown in the Table 1 below.

| Output Rating | Dimensions in (cm) | Material |
|---------------|-----------------------------------|---------------------------|
| 10A | 12 x 12 x 1/8 (30.5 x 30.5 x 0.3) | Aluminum (black anodized) |
| 25A | 15 x 15 x 1/8 (38.1 x 38.1 x 0.3) | Aluminum (black anodized) |
| 50A | 15 x 15 x 1/8 (38.1 x 38.1 x 0.3) | Aluminum (black anodized) |
| 75A | 17 x 17 x 1/8 (43.2 x 43.2 x 0.3) | Aluminum (black anodized) |
| 90A | 17 x 17 x 1/8 (43.2 x 43.2 x 0.3) | Aluminum (black anodized) |

It is recommended to use a thermal compound (for example, Kele part number TCC-12) between the base of the solid-state relay and the heat sink for heat dissipation.

APPLICATION INFORMATION

Heater Loads

When using solid-state relays for driving heaters where the load is switched on and off rapidly and continuously, severe thermal stress will result. In such cases, use an solid-state relay at no more than 75% of the rating.

| SSR Rating | @ 120 VAC | @ 240 VAC |
|------------|-----------|-----------|
| 10A | 1 kW | 2 kW |
| 25A | 2 kW | 4 kW |
| 50A | 3 kW | 6 kW |

Lamp Loads

Zero-voltage switching is ideal for driving incandescent lamps since the cold filament will not be subjected to a large inrush current. Using a zero-switched solid-state relay will reduce inrush current and prolong lamp life.

| SSR Rating | @ 120 VAC | @ 240 VAC |
|------------|-----------|-----------|
| 10A | 1 kW | 2 kW |
| 25A | 2 kW | 4 kW |
| 50A | 3 kW | 6 kW |

Solenoid Valves and Contactors

Solid-state relays use high-noise immunity circuitry with a snubber to handle the electrical noise generated by inductive loads.

| SSR Rating | @ 120 VAC | @ 240 VAC |
|------------|-----------|-----------|
| 10A | 900W | 1800W |
| 25A | 2100W | 4200W |
| 50A | 3800W | 7500W |

Motor Loads

| SSR Rating | @ 120 VAC | @ 240 VAC | @ 480 VAC |
|------------|-----------|-----------|-----------|
| 10A | 1/2 | 3/4 | 3/4 |
| 25A | 1/2 | 3/4 | 3/4 |
| 50A | 3/4 | 1-1/2 | 1-1/2 |
| 75A | 3/4 | 5 | 5 |
| 90A | 3/4 | 5 | 5 |

ORDERING INFORMATION

MODEL

RSSDN-10A
RSSDN-25A
RSSDN-50A
RSSDN-75A
RSSDN-90A

DESCRIPTION

Solid-state relay, 10A continuous output current
Solid-state relay, 25A continuous output current
Solid-state relay, 50A continuous output current
Solid-state relay, 75A continuous output current
Solid-state relay, 90A continuous output current