



DENKI SEIGYO – DSR1- _A-DA

Single Phase DC-AC Solid State Relay (SSR)

Category: Solid State Relay / DC-AC SSR



PRODUCT OVERVIEW

The **Denki Seigyo DSR1- _A-DA** is a high-performance DC-controlled AC Solid State Relay (SSR) designed for precise, silent, and contactless switching of AC loads in industrial automation and process control applications.

Featuring a reliable DC input control circuit with AC output switching through Triac/SCR technology, the relay ensures fast response, long operational life, and maintenance-free operation without mechanical wear.

The DSR1- _A-DA series supports both **Zero-cross** and **Random-turn-on** switching methods, making it suitable for resistive, inductive, lighting, and motor loads across a wide range of industrial systems.

Its compact structure, high dielectric isolation, and rugged thermoplastic housing provide stable performance even in harsh industrial environments.

KEY CHARACTERISTICS

- DC input control with AC output switching
- Compatible with PLCs, controllers, and automation systems
- Zero-cross and random-turn-on models available
- Silent operation with no contact bounce or electrical arcing
- High dielectric isolation between input and output
- Built-in LED indicator for ON status monitoring
- Compact, rugged, and maintenance-free design
- Long operational life with high surge current capability
- Low power consumption and efficient thermal performance
- Heat sink mountable for high-current applications



VERSATILE AND RELIABLE INDUSTRIAL SSR

The DSR1-_A-DA series provides dependable and high-speed switching for AC loads using low-voltage DC control signals.

With a wide input range of **3–32 VDC** and output switching capability up to **480 VAC**, the relay is highly adaptable for industrial automation, process control, HVAC systems, lighting control, motor switching, and power regulation.

Integrated optical isolation ensures superior electrical safety, excellent noise immunity, and stable long-term operation in demanding industrial conditions.

TECHNICAL SPECIFICATIONS

Parameter	Specification
Model	DSR1-_A-DA
Type	Single Phase Solid State Relay (DC-AC)
Manufacturer	Denki Seigyo
Control Type	DC Input / AC Output
Input Control Voltage	3–32 VDC
Input Current	≤ 15 mA (Typical)
Output Load Voltage	24–480 VAC
Rated Load Current	10 A / 25 A / 40 A / 60 A / 80 A / 100 A
Frequency Range	47–63 Hz
Turn-on Type	Zero-cross / Random-turn-on
Turn-on Time	≤ 10 ms (Zero-cross Type)
Turn-off Time	≤ 10 ms
ON-State Voltage Drop	≤ 1.6 V (At Rated Load)
OFF-State Leakage Current	≤ 10 mA
Dielectric Strength	2500 VAC (Input–Output, 1 min)
Insulation Resistance	≥ 100 MΩ (500 VDC)
Surge Current (10 ms)	10× Rated Current
Cooling Method	Natural Convection / Forced Cooling
LED Indicator	Built-in Input ON Indication
Mounting Method	Panel / Heat Sink Mount
Ambient Operating Temperature	–25 °C to +80 °C
Storage Temperature	–30 °C to +100 °C
Humidity Range	45–85 % RH (Non-condensing)
Housing Material	Flame-retardant Thermoplastic
Dimensions (L × W × H)	Approx. 62 × 45 × 24 mm
Weight	Approx. 150–250 g



Compliance

CE, RoHS

KEY FEATURES

- High-speed silent switching with DC control
- Zero-cross and random-turn-on models available
- Integrated LED indicator for operation monitoring
- Excellent isolation between control and load circuits
- No mechanical contacts, wear, or electrical arcing
- Long service life and maintenance-free operation
- Compact and vibration-resistant construction
- Energy-efficient with low heat generation
- Easy installation using screw terminals
- Suitable for panel and heat sink mounting

APPLICATIONS

- Industrial automation systems
- Process control equipment
- Machine control panels
- HVAC and temperature control systems
- Motor and pump control systems
- Lighting control and distribution systems
- PLC interface switching
- Packaging and conveyor machinery
- Heating equipment and ovens
- Power regulation and switching systems

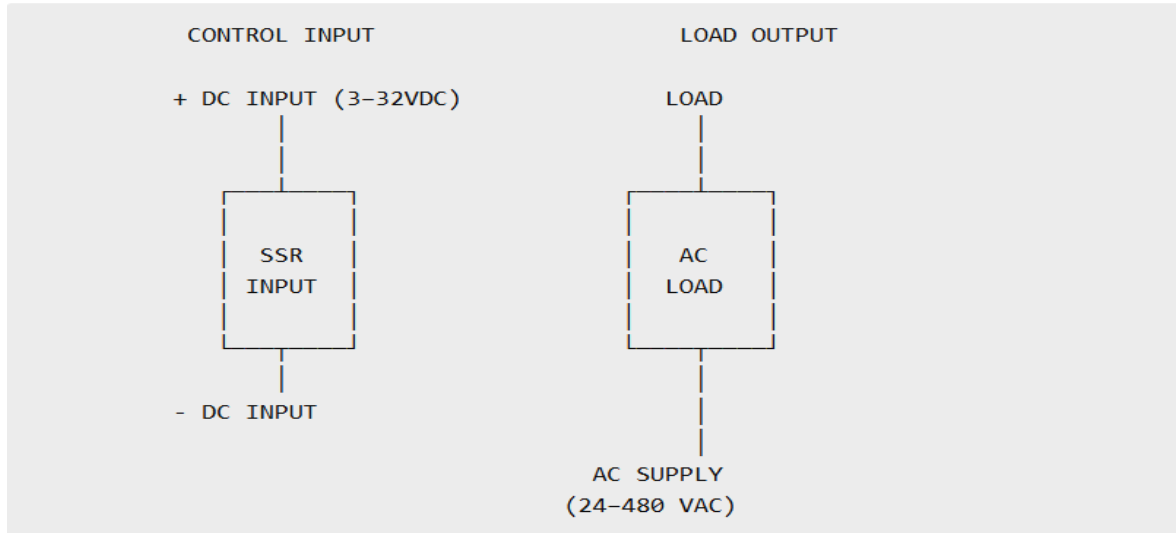
ORDERING INFORMATION

Model	Input Voltage	Output Voltage	Load Current	Control Type	Indicator
DSR1-10A-DA	3–32 VDC	24–480 VAC	10 A	Zero-cross	LED
DSR1-25A-DA	3–32 VDC	24–480 VAC	25 A	Zero-cross	LED
DSR1-40A-DA	3–32 VDC	24–480 VAC	40 A	Zero-cross	LED
DSR1-60A-DA	3–32 VDC	24–480 VAC	60 A	Random-on	LED
DSR1-80A-DA	3–32 VDC	24–480 VAC	80 A	Random-on	LED
DSR1-100A-DA	3–32 VDC	24–480 VAC	100 A	Zero-cross	LED



WIRING DIAGRAM

CONTROL INPUT LOAD OUTPUT



Typical Terminal Configuration

Terminal	Function
1 (+)	DC Input Positive
2 (-)	DC Input Negative
T1	AC Load Terminal
T2	AC Supply Terminal

SAFETY AND INSTALLATION NOTES

- Use an appropriate heat sink for load currents above 25 A.
- Ensure adequate ventilation during operation.
- Install suitable protection devices such as fuses or circuit breakers.
- Avoid exceeding the rated current and voltage specifications.
- Tighten terminal screws securely before energizing the relay.
- Do not operate in corrosive or explosive environments.
- Disconnect power before installation or maintenance.

DENKI SEIGYO

Industrial Automation & Control Solutions