



DENKI SEIGYO

DSR1- _A-DD SERIES

Single Phase DC-DC Solid State Relay (SSR)



Category

Solid State Relay / Single Phase DC-DC SSR

Manufacturer

Denki Seigyo

1. PRODUCT OVERVIEW

The **Denki Seigyo DSR1- _A-DD Series** is a premium industrial-grade **single-phase DC-DC solid state relay (SSR)** designed for fast, silent, and highly reliable DC load switching.

Built using advanced **MOSFET switching technology**, the relay delivers low-loss switching performance, rapid response, and long operational life without mechanical wear.

The DSR1- _A-DD Series is ideal for automation systems, robotics, battery systems, DC motor control, renewable energy systems, and industrial DC power distribution.

Key Benefits

- Fast MOSFET switching performance
- Silent operation without contact wear
- High-speed DC load control
- Excellent electrical isolation
- Compact industrial housing
- Long operational life
- Maintenance-free design
- High surge current capability



2. PRODUCT FEATURES

Feature	Description
Control Type	DC Input / DC Output
Switching Technology	MOSFET Output
Input Voltage	3–32VDC
Output Voltage	5–220VDC
Current Range	2A to 40A
Isolation	Optical isolation
Mounting	Panel / Heat sink
Indicator	Built-in LED
Housing	Flame-retardant thermoplastic
Compliance	CE / RoHS

3. MODEL STRUCTURE

Example: DSR1-20A-DD

Code	Description
D	Denki Seigyo
SR	Solid State Relay
1	Single Phase
20A	Rated Load Current
D	DC Input
D	DC Output

4. TECHNICAL SPECIFICATIONS

General Specifications

Parameter	Specification
Model	DSR1- _A-DD
Type	Single Phase DC-DC SSR
Control Method	DC Input / DC Output
Output Technology	MOSFET Switching



Input Specifications

Parameter	Specification
Input Voltage	3 – 32VDC
Input Current	≤ 15 mA
Input Indicator	LED
Trigger Method	DC Control

Output Specifications

Parameter	Specification
Output Voltage	5 – 220VDC
Rated Current	2A / 5A / 10A / 20A / 40A
Surge Current	10 × Rated Current
ON-State Voltage Drop	≤ 1.5V
OFF-State Leakage Current	≤ 1 mA

Switching Characteristics

Parameter	Specification
Turn-on Time	≤ 1 ms
Turn-off Time	≤ 1 ms
Control Polarity	Unidirectional / Bidirectional

Insulation Specifications

Parameter	Specification
Isolation Voltage	2500 VAC
Insulation Resistance	≥ 100 MΩ @ 500VDC
Isolation Method	Optical Isolation



Environmental Specifications

Parameter	Specification
Operating Temperature	-25°C to +80°C
Storage Temperature	-30°C to +100°C
Humidity	45-85% RH
Cooling Method	Natural / Forced Cooling

5. MECHANICAL DIMENSIONS

Standard SSR Housing

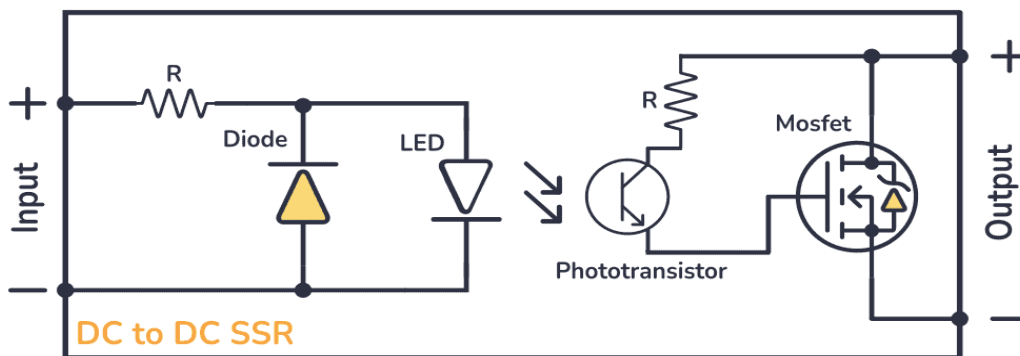
Parameter	Dimension
Length	Approx. 58 mm
Width	Approx. 45 mm
Height	Approx. 23 mm
Weight	Approx. 120 g

Mechanical Features

- Compact industrial housing
- Heat sink compatible design
- Screw terminal connections
- High thermal conductivity baseplate

6. WIRING DIAGRAM

DC INPUT / DC OUTPUT CONNECTION





7. OPERATION PRINCIPLE

The DSR1-_A-DD Series uses an optically isolated MOSFET switching circuit.

When a DC control signal is applied to the input terminals, the MOSFET output stage switches the DC load with minimal power loss and high-speed response.

MOSFET Output Advantages

- Fast switching speed
- Low heat generation
- Silent operation
- No spark or contact wear
- Long operational life
- Efficient energy transfer

8. APPLICATIONS

The DSR1-_A-DD Series is suitable for:

- DC motor control
- Solenoid switching
- PLC output interfacing
- Battery management systems
- Renewable energy systems
- Robotics and automation
- Conveyor systems
- Motion control systems
- Industrial instrumentation
- DC power distribution

9. ORDERING INFORMATION

Model	Input Voltage	Output Voltage	Rated Current	Mounting
DSR1-05A-DD	3-32VDC	5-60VDC	5A	Panel / Heat sink
DSR1-10A-DD	3-32VDC	5-100VDC	10A	Panel / Heat sink
DSR1-20A-DD	3-32VDC	5-200VDC	20A	Panel / Heat sink
DSR1-40A-DD	3-32VDC	5-220VDC	40A	Panel / Heat sink



10. INSTALLATION NOTES

- Use proper heat sink for high-current applications
- Ensure correct DC polarity connection
- Provide adequate ventilation around SSR
- Use suitable fuse or protection breaker
- Tighten terminals securely
- Avoid exceeding maximum voltage/current ratings
- Apply thermal compound between SSR and heat sink

11. PRODUCT SUMMARY

The **Denki Seigyo DSR1-_A-DD Single Phase DC-DC Solid State Relay** combines:

- High-speed MOSFET switching
- Silent operation
- Long operational life
- Efficient DC power control
- Excellent electrical isolation
- Compact industrial design

The DSR1 Series provides dependable, maintenance-free DC switching for industrial automation and power control systems.

DENKI SEIGYO

Industrial Automation Components