

Technical Datasheet & Installation Manual

DSRH1 Series — Slim Solid State Relay

(DC→DC / DC→AC / AC→AC Variants)

Current Ratings: 10A / 25A / 40A / 60A / 80A

Mounting Type: Panel Mount – Slim Housing with Integrated Heat Sink

Isolation: Optical Isolation (Input–Output)

1. General Description

The DSRH1 Series Slim Solid State Relay (SSR) is a compact, high-reliability switching solution designed for industrial automation and process control applications. The series supports three output configurations within the same mechanical platform:

- **DD3** – DC Input → DC Output (MOSFET Bridge)
- **DA3** – DC Input → AC Output (Triac / SCR)
- **AA3** – AC Input → AC Output (Triac)

All variants share identical mechanical dimensions and mounting structure, simplifying panel design and replacement.

2. Model Coding Structure

DSRH1 – [Current Rating] – [Variant]

Examples:

- DSRH1-10A-DD3
- DSRH1-25A-DD3
- DSRH1-40A-DA3
- DSRH1-60A-AA3
- DSRH1-80A-DD3

3. Variant Overview & Comparison

Parameter	DD3	DA3	AA3
Control Input	4–32 VDC	4–32 VDC	80–280 VAC
Output Type	DC (MOSFET)	AC (Triac)	AC (Triac)
Max Output Voltage	600 VDC	480 VAC	480 VAC
Switching Method	Instant ON/OFF	Zero-Cross (Std)	Zero-Cross
Typical Application	DC Heaters, Batteries	AC Heaters, Lamps	AC Panel Control

4. Electrical Specifications

4.1 Input Characteristics

Variant	Operating Range	Typical Current	Max Current
DD3	4–32 VDC	8 mA	20 mA
DA3	4–32 VDC	8 mA	20 mA
AA3	80–280 VAC	8 mA	15 mA

Isolation Voltage (Input–Output): 2500 Vrms

4.2 Output Characteristics

DD3 (DC Output)

- Load Voltage: Up to 600 VDC
- On-State Voltage Drop: 0.4–1.2 V
- Leakage Current: < 50 μ A
- Switching Time: < 5 ms

DA3 / AA3 (AC Output)

- Load Voltage: 24–480 VAC
 - On-State Voltage Drop: 1.6–1.8 Vrms
 - Leakage Current: < 10 mA
 - Zero-Cross Voltage: 20–35 V
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5. Current Ratings

Model	Continuous Current	Surge Current (10 ms)
10A	10A	120A
25A	25A	200A
40A	40A	300A
60A	60A	450A
80A	80A	600A

Recommended selection margin: Choose SSR rated 25–30% higher than actual load current.

6. Absolute Maximum Ratings

- Max DC Output Voltage: 600 VDC
- Max AC Output Voltage: 480 VAC
- Operating Temperature: -20°C to +70°C
- Storage Temperature: -40°C to +125°C
- Max Case Temperature: 100°C

Derating required above 40°C ambient.

7. Mechanical Specifications

- Length: 110 mm
- Width: 25 mm
- Height: 40 mm
- Mounting: 2 × M4 holes (35 mm spacing)
- Housing: Aluminum heat sink base
- Terminal Type: Screw terminal

Torque Specifications:

- Mounting Screw: 2.0 N·m
 - Terminal Screw: 1.0–1.2 N·m
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8. Selection Chart

8.1 By Control Signal

Control Signal	Load Type	Recommended Variant
24V DC (PLC)	DC Load	DD3
24V DC (PLC)	AC Load	DA3
230V AC Control	AC Load	AA3

8.2 By Load Voltage

Load Voltage	Variant
Up to 600 VDC	DD3
24–480 VAC	DA3 / AA3

8.3 By Load Current

Load Current	Recommended Rating
≤8A	10A
9–20A	25A
21–35A	40A
36–55A	60A
56–75A	80A

9. Wiring Diagrams

9.1 DD3 — DC Input / DC Output

Control Side (4–32VDC)

PLC + — [1 +]
PLC – — [2 –]

Load Side (DC)

+VDC — [3]
[4] — Load — –VDC

For inductive loads, install flyback diode across load.

9.2 DA3 — DC Input / AC Output

Control Side (4–32VDC)

PLC + — [1 +]
PLC – — [2 –]

Load Side (AC)

L — [3]
[4] — Load — N

Use RC snubber for inductive loads.

9.3 AA3 — AC Input / AC Output

Control Side (80–280VAC)

Control L — [1]
Control N — [2]

Load Side (AC)

L — [3]
[4] — Load — N

10. Installation Guidelines

1. Mount vertically on metal panel.
2. Apply thin thermal compound between base and panel.
3. Maintain minimum 20 mm spacing between units.
4. Provide ventilation or forced air cooling for 60A and 80A models.
5. Avoid mounting near heat-generating components.

11. Commissioning Procedure

1. Confirm correct model and rating.
 2. Verify control voltage matches variant.
 3. Verify load voltage type.
 4. Tighten all terminals.
 5. Apply control signal and verify LED indication.
 6. Monitor case temperature during initial operation.
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12. Protection Recommendations

- Install appropriate fuse or MCB in series with load.
 - Use surge protection for inductive loads.
 - Ensure proper panel grounding.
 - Do not exceed rated current or voltage.
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13. Maintenance

- Inspect terminals periodically.
- Clean heat sink fins from dust.
- Replace device if abnormal heating or leakage observed.

Expected electrical life: >10 million operations.

14. Troubleshooting

Issue	Possible Cause	Action
Load not switching	No control input	Check wiring
Overheating	Insufficient cooling	Improve airflow
AC load flicker	Inductive load	Add snubber
Device permanently ON	Output shorted	Replace SSR

15. Product Summary

The DSRH1 Slim SSR Series provides a unified industrial solution for:

- ✓ DC to DC switching
- ✓ DC to AC switching
- ✓ AC to AC switching
- ✓ 10A to 80A ratings
- ✓ Compact slim panel design
- ✓ High reliability and long service life