KEITHLEY

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Introduction

This guide contains information on S46 relay installation and system configuration that is necessary after installing new relays. This guide (PA-778) is also provided on the Product Information CD-ROM supplied with the S46.

> *WARNING* **The information in this section is only intended for qualified service personnel. Do not attempt to replace parts or otherwise service the equipment unless you are qualified to do so.**

Relay kits

Table 1 summarizes available relay kits and part numbers.

> *WARNING* **Use only the parts specified in Table 1 of this guide when servicing the equipment. Use of improper parts may expose the operator to hazardous voltages that could result in personal injury or death.**

Table 1
S46 relay kits

Relay location	Description	Relay kit model number	Kit parts summary	Keithley part number
1 to 8	SPDT RF relay	S46-SPDT-KIT	4-40 × 5/8 PPH screws (2) SPDT relay (1) SPDT bracket (1) Connecting cable (1)	RL-258 SYS46-314A SYS46-311B
A to D	SP4T RF relay	S46-SP4T-KIT	4-40 × 3/16 PPHSEM screws (2) SP4T relay (1) Ribbon cable (1)	RL-259-2 CA-286-1B
A to D	SP6T RF relay	S46-SP6T-KIT	4-40 × 3/16 PPHSEM screws (2) SP6T relay (1) Ribbon cable (1)	RL-259-1 CA-286-1B

Relay installation

Before installing the relays, remove the screws that secure the S46 top cover, and then remove the cover.

> *WARNING* **Disconnect the line cord and all cables from the S46 before removing the top cover.**

RELAY 1-8 installation

1. Remove the nuts that secure the cover plate from the mounting hole where the new relay is to be installed (see Figure 1).
2. Install the support SPDT bracket at the relay location, and secure it with two nuts.
3. Referring to Figure 2, solder the two control wires to the terminals of the relay.
4. Install the relay on the support bracket using the supplied 4-40 screws.
5. Plug the wire connector into the appropriate circuit board connector (see Figure 4 and Table 2).
6. Install the top cover, and then configure the system as covered in "System configuration" on page 4 of this guide.
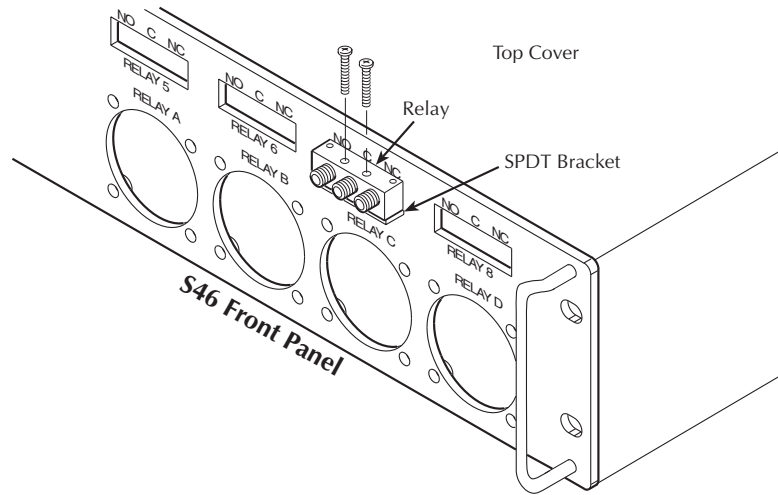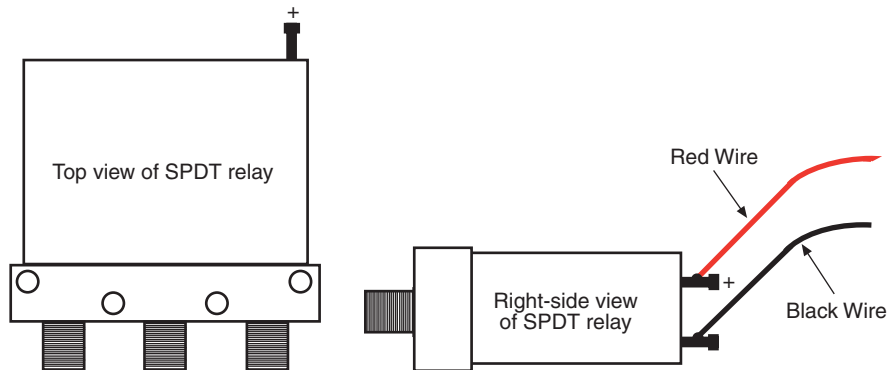
RELAY 1-8 installation

Figure 2
Connecting control wires to SPDT relay

RELAY A-D installation

1. Remove the four screws that secure the cover plate from the mounting hole where the new relay is to be installed (see Figure 2).
2. Connect the supplied ribbon cable to the relay, and then secure it with the two screws.
3. Insert the relay in the mounting hole, and then secure it with the four screws.
4. Plug the ribbon connector into the appropriate circuit board connector (see Figure 4 and Table 2).
5. Install the top cover, and then configure the system as covered in "System configuration" on page 4 of this guide.
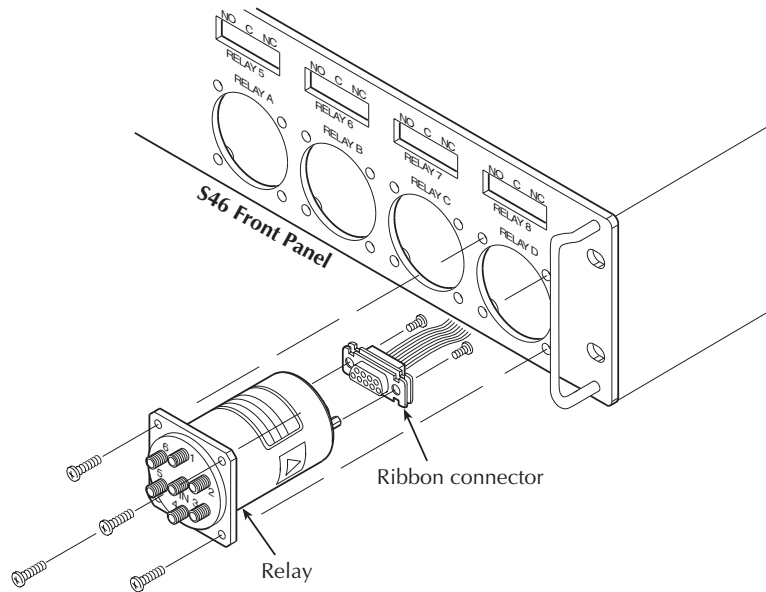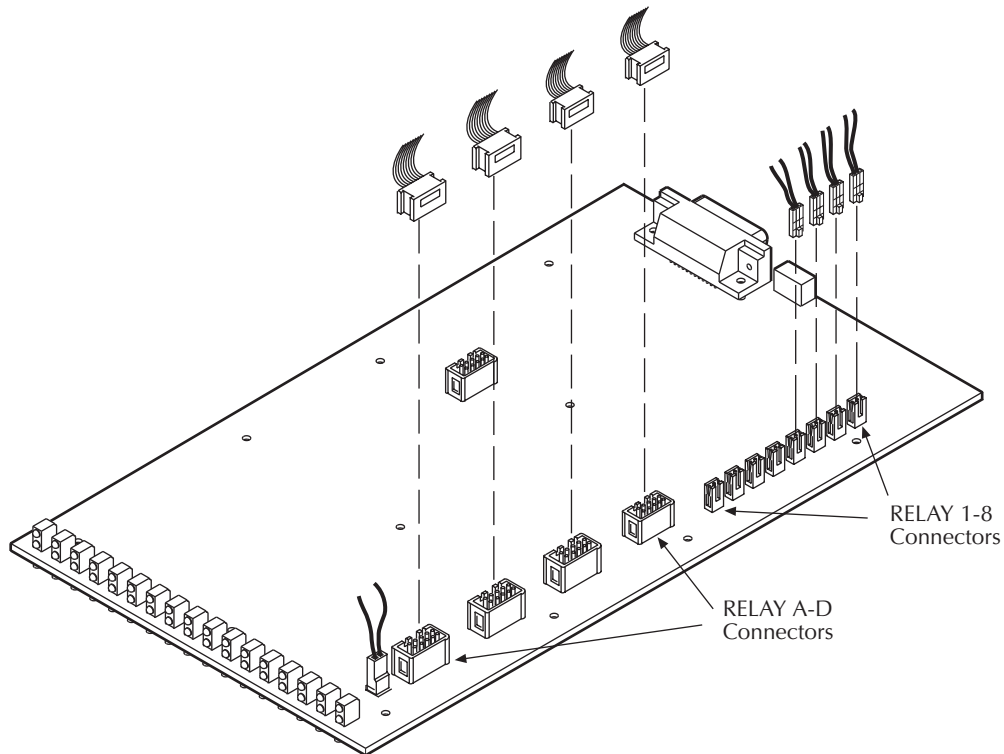
Figure 3
RELAY A-D installation

Table 2
Relay connectors

Relay	Connector		Relay	Connector
A	J5		1	J18
B	J6		2	J19
C	J7		3	J20
D	J8		4	J21
—	—		5	J22
—	—		6	J23
—	—		7	J24
—	—		8	J25

Figure 4
Relay connector locations

RELAY 1-8
Connectors

RELAY A-D
Connectors

System configuration

After installing the new relays, you must program the S46 for the new relay configuration with the following command:

```
:ROUT:CONF:CPOL <clist>
```

<clist> is defined as follows:

clist = (@0 | 3-6, 0 | 3-6, 0 | 3-6, 0 | 3-6, 0 | 1, ... 0 | 1)
Relay: A   B   C   D   1   ... 8

Note that all switch locations must be included in the <clist> whether or not all locations are populated. The numeric value (1 or 3-6) indicates the number of throws, while a value of 0 indicates that a location is not populated.

For example, if RELAY A and RELAY B are SP6T, RELAY 1 and RELAY 2 are SPDTs, and all other locations are not populated, the command syntax would be:

```
:ROUT:CONF:CPOL (@6,6,0,0,1,1,0,0,0,0,0,0)
```

See Section 3 of the S46 Instruction Manual for more detailed programming information.