68VHDCI-50F SSR 8, 16, 24 CHANNEL CABLE ADAPTER

The 68VHDCI-50F SSR 8, 16, 24 Channel Cable Adapter allows you to connect the digital I/O port of your National Instruments 7344, 7314, or 7324 series motion controller to a third-party SSR (solid-state relay) backplane. National Instruments recommends using the SHC68-C68-S cable (part number 186380-02) with this cable adapter.

Connecting Your Adapter

Do the following steps to connect your adapter:

1. Make sure all computers and peripherals are turned off, unplugged, and that all LED lights have gone out, since some hardware remains internally powered for some time after being unplugged.

2. Install the 50-pin connector of the adapter onto the backplane connector. The connector is keyed and can only install one way.

3. Connect the SHC68-C68-S cable from the digital I/O port of your motion controller to the adapter.

4. Verify the adapter switches are in the correct position for your application. Refer to *Configuring Your Switches* in the *Adapter Configuration* section of this guide for more information.

Adapter Configuration

Module Input and Output

This section covers the allowable combinations of input and output modules for specific motion controllers. Refer to the *Specifications* section of this guide for the pinout chart of your controller.

7344

Modules can be any combination of inputs and outputs, in any order.

7314/7324

Modules 0 through 7 must be input modules, 8 through 15 must be output modules, and 16 through 23 must be either all input or all output modules. Refer to the *7324/7314 Hardware User Manual* for digital I/O port settings.

Configuring Your Switches

Your adapter has six switches labelled S1 through S6 that affect its behavior when used with a 7344 series motion controller. If you are using a 7314 or 7324 series motion controller, all six switches must be in the up position, as shown in Figure 1.
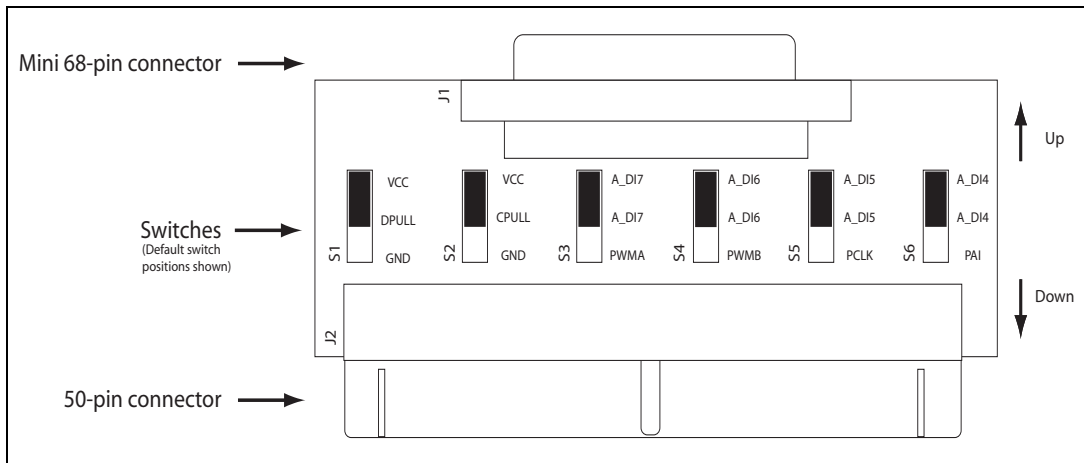

Figure 1. 68VHDCI-50F SSR 8, 16, 24 Channel Cable Adapter Default Switch Settings

The following is a description of each switch and its effect:

- **S1:** DPULL—Controls the state of the input pins at power up. Moving this switch to the up position connects DPULL to VCC and configures all pins in all ports for 100 kΩ pull-ups. Moving this switch to the

down position connects DPULL to GND and configures all pins in all ports for 100 kΩ pull-downs.

- **S2:** CPULL—This switch is a reserved pin on the 7344, and is unused. Leave this switch in the up position.

- **S3:** PWMA—Moving this switch to the down position connects the PWM2 output to module 7. This switch should remain in the up position for typical operation. Refer to the *7344 Hardware User Manual* for information on using PWM (Pulse With Modulation) features.

- **S4:** PWMB—Moving this switch to the down position connects the PWM1 output to module 6. This switch should remain in the up position for typical operation. Refer to the *7344 Hardware User Manual* for information on using PWM features.

- **S5:** PCLK—Moving this switch to the down position connects the PCLK output to module 5. This switch should remain in the up position for typical operation. Refer to the *7344 Hardware User Manual* for information on using PWM features.

- **S6:** PAI—This switch is a reserved pin on the 7344, and is unused. Leave this switch in the up position.

Specifications

Figure 2 shows the pin assignments for 7344 and 7324/7314 series motion controllers, as they relate to the 68VHDCI-50F SSR 8, 16, 24 Channel Cable Adapter.

```
                    +5 V ─┤ 1 │35 ├─ Digital Ground
                   PCLK* ─┤ 2 │36 ├─ Digital Ground
                    PAI* ─┤ 3 │37 ├─ Digital Ground
                Reserved ─┤ 4 │38 ├─ DPULL*
                   PWM1* ─┤ 5 │39 ├─ Digital Ground
                Reserved ─┤ 6 │40 ├─ CPULL*
                Reserved ─┤ 7 │41 ├─ Digital Ground
                Reserved ─┤ 8 │42 ├─ Digital Ground
                   PWM2* ─┤ 9 │43 ├─ Digital Ground
                Module 0 ─┤10 │44 ├─ Module 1
          Digital Ground ─┤11 │45 ├─ Module 2
                Module 3 ─┤12 │46 ├─ Digital Ground
                Module 4 ─┤13 │47 ├─ Module 5
          Digital Ground ─┤14 │48 ├─ Module 6
                Module 7 ─┤15 │49 ├─ Digital Ground
                Module 8 ─┤16 │50 ├─ Digital Ground
                Module 9 ─┤17 │51 ├─ Module 10
          Digital Ground ─┤18 │52 ├─ Module 11
          Digital Ground ─┤19 │53 ├─ Module 12
          Digital Ground ─┤20 │54 ├─ Module 13
               Module 14 ─┤21 │55 ├─ Digital Ground
               Module 15 ─┤22 │56 ├─ Digital Ground
               Module 16 ─┤23 │57 ├─ Module 17
          Digital Ground ─┤24 │58 ├─ Module 18
               Module 19 ─┤25 │59 ├─ Digital Ground
               Module 20 ─┤26 │60 ├─ Module 21
          Digital Ground ─┤27 │61 ├─ Module 22
               Module 23 ─┤28 │62 ├─ Digital Ground
                Reserved ─┤29 │63 ├─ Reserved
          Digital Ground ─┤30 │64 ├─ Reserved
                Reserved ─┤31 │65 ├─ Digital Ground
                Reserved ─┤32 │66 ├─ Reserved
          Digital Ground ─┤33 │67 ├─ Reserved
                Reserved ─┤34 │68 ├─ Digital Ground

        * 7344 controller only; reserved on all others
```

Figure 2. 68VHDCI-50F SSR 8, 16, 24 Channel Cable Adapter 68-Pin Connector