PowerFlex DC Stand-Alone Regulator (SAR)
Power Interface Circuit Board

What This Kit Includes

- Power interface circuit board
- Two mounting screws with captive lock washers (for mounting the power interface circuit board)
- Four mounting screws with captive lock washers and four stand-offs (fastened to the power interface circuit board for mounting the switching power supply circuit board)
- Static strap
- Flathead screwdriver for terminal block connections

Tools That You Need

- Phillips® screwdriver
- Hexalobular screwdriver
- Flathead screwdriver
- Nut driver or wrench for hex stand-offs

Phillips® is a registered trademark of Phillips Screw Company.
What You Need to Do

The list below is an overview of the steps needed to remove and replace the power interface circuit board. See each step for detailed procedures.

**IMPORTANT** The SAR has many different cables, wires, and plugs with different connections and routing. For ease of reassembly:

- Make note of cable and wire routing between and within the different circuit boards.
- Label connectors and plugs with the name of the connection and circuit board from where it was disconnected.

1. **Remove Power**
2. **Remove the Covers**
3. **Remove the Control Circuit Board**
4. **Remove the Power Interface Circuit Board**
5. **Remove the Switching Power Supply Circuit Board**
6. **Install the New Power Interface Circuit Board and Reassemble the SAR**
7. **Document the Change**

**Step 1: Remove Power**

**ATTENTION:** Remove power before making or breaking cable connections. When you remove or insert a cable connector with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system’s field devices, causing unintended machine motion
- causing an explosion in a hazardous environment

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

Remove and lock-out all incoming power to the SAR.
Step 2: **Remove the Covers**

1. Disconnect the Device Peripheral Interface (DPI) cable from the HIM assembly (if present).

2. Loosen the captive screws that secure the bottom front cover to the SAR, then slide the cover down and off the chassis.

3. Press in on the sides at the bottom edge of the top cover and pull the cover toward you until the cover is partially off the chassis. Then pull the top of the cover toward you until the mounting pins align with the keyholes in the top of the cover. Then carefully lift the cover off of the chassis.

4. Disconnect the HIM communication cable from the control board.

**IMPORTANT** The HIM assembly is connected to the control board via a communication cable. Carefully set the top cover down next to the chassis.
Step 3: Remove the Control Circuit Board

1. Label and disconnect the ribbon cables at connectors XA, XR, and XFCD.
2. Unplug the terminal block connectors (6) from the control board (if wired).
3. Remove the EMI shield mounting screws (5), and save for reassembly.
4. Remove the EMI shield ground screw (1), and save for reassembly.

Note: The control board remains mounted to the EMI shield.

5. Carefully lift the EMI shield and control board (to provide clearance from cabling below), and slide the EMI shield and control board out of the chassis, and carefully set aside.
Step 4: Remove the Power Interface Circuit Board

**IMPORTANT** The power interface circuit board and the switching power supply circuit board are removed together, as an assembly.

1. Record the DIP switch settings for SW3 and SW4, and the jumper pin locations for J4 and J5.

   See the *PowerFlex DC Stand-Alone Regulator and Gate Amplifier User Manual*, publication 23P-UM001, for more information about these DIP switches and jumpers.
2. Label and disconnect the plugs at connectors X3 and X4.

3. Label and disconnect the plugs at connectors XCD and XCD_IO.

4. Label and disconnect the ribbon cable at XPT1.

5. Label and disconnect the plugs at TH-CT and XF.

6. Label and disconnect the plugs at connectors at XP1 and XP2.

7. Label and disconnect the plug from connector XUVW.

8. Unplug the control power and relay terminal blocks.

9. Label and disconnect any external burden resistor circuit wires from the XCT terminal.

10. Remove the mounting screws (2).
11. Remove the cooling vent mounting screws (4) on top of the stand-alone regulator, and save for reassembly.

12. Disconnect the fan plug from the XV connector on the switching power supply circuit board.

13. Remove the cooling vent and fan assembly.

14. Carefully slide the power interface circuit board and the switching power supply circuit board assembly out of the chassis.

15. Label and remove the ribbon cable at connector XR and save to reuse on the new power interface circuit board.

Step 5: Remove the Switching Power Supply Circuit Board

1. Remove the stand-off mounting screw (1) next to the XR ribbon cable connector on the power interface circuit board, and save for reassembly.

2. Label and disconnect the plug at connector XUV.

3. Remove the mounting screws (4), and save for reassembly.

4. Carefully pull the two boards apart, pulling the XSW and XSW1 plugs on the switching power supply circuit board out of the pins on the power interface circuit board.

5. Save the switching power supply circuit board for reassembly.

6. Dispose of the power interface circuit board properly.

Step 6: Install the New Power Interface Circuit Board and Reassemble the SAR

1. Install the switching power supply circuit board onto the new power interface circuit board in reverse order of removal. See Remove the Switching Power Supply Circuit Board on page 8.

2. Install the new power interface circuit board in reverse order of removal. See Remove the Power Interface Circuit Board on page 5.

3. Install the control circuit board in reverse order of removal. See Remove the Control Circuit Board on page 4.
Step 7: Document the Change

1. Record the installation of the new power interface circuit board and date of installation on the field installed option label on the side of the SAR (as shown below).
2. Replace the SAR covers in the reverse order of removal. See Remove the Covers on page 3.
3. Install DPI cable (if present).

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Description</th>
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<tbody>
<tr>
<td>PowerFlex DC Stand-Alone Regulator and Gate Amplifier User Manual, publication 23P-UM001</td>
<td>Provides installation instructions and connection and configuration information for the PowerFlex DC Stand-Alone Regulator (SAR).</td>
</tr>
<tr>
<td>PowerFlex Digital DC Drive User Manual, publication 20D-UM001</td>
<td>Provides additional installation, configuration, and programming information for the PowerFlex DC Stand-Alone Regulator (SAR).</td>
</tr>
<tr>
<td>Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1</td>
<td>Provides general guidelines for installing a Rockwell Automation industrial system.</td>
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</tbody>
</table>

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