

SynchLink™ Board for PowerFlex® 700S Drives with Phase II Control



ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the +DC & –DC terminals of the Power Terminal Block (DC+ & DC- in high power drives). The voltage must be zero.



ATTENTION: HOT surfaces can cause severe burns. **Do not** touch the heatsink surface during operation of the drive. After disconnecting power allow time for cooling.



ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber-optic cable connectors.



ATTENTION: This drive contains **ESD** (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference A-B publication 8000-4.5.2, “Guarding Against Electrostatic Damage” or any other applicable ESD protection handbook.

What This Kit Contains

Verify that your kit contains the items listed in the following table. If your kit does not contain the correct items, contact your Rockwell Automation sales representative.

Quantity:	Description
1	SynchLink Board
1	“Stacker” connector
2	Screws
2	Stand-offs

Tools That You Need

- Phillips® screwdriver
- POZIDRIV® screwdriver
- Standard (flat blade) screwdriver

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What You Need to Do

To install or replace a SynchLink board, complete the following steps:

- ☐ Step 1: Remove power from the drive.
- ☐ Step 2: Open/Remove the drive cover(s).
- ☐ Step 3: Remove the control cassette from the drive.
- ☐ Step 4: Remove the inside cover from the control cassette.
- ☐ Step 5: Remove the existing SynchLink board.
- ☐ Step 6: Install the new SynchLink board.
- ☐ Step 7: Install the control cassette inside cover.
- ☐ Step 8: Install the control cassette in the drive.
- ☐ Step 9: Connect the SynchLink cables.
- ☐ Step 10: Close/Install the drive cover(s).
- ☐ Step 11: Document the change.

Step 1: Remove Power from the Drive

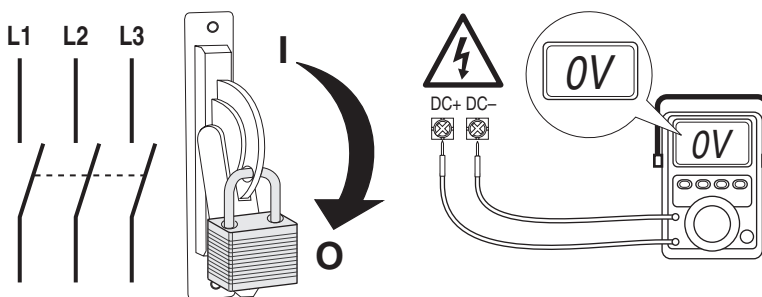


ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the +DC & –DC terminals of the Power Terminal Block. The voltage must be zero.

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.

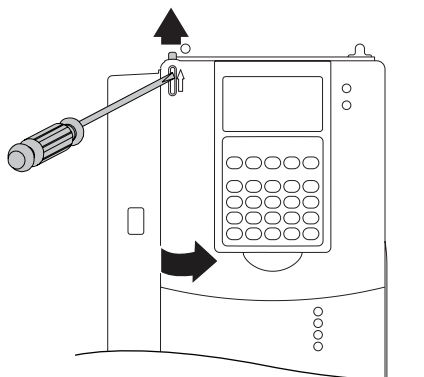


Step 2: Open/Remove the Drive Cover(s)

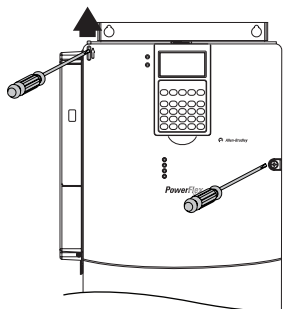
Frames 1...6

- **Frames 1...4:** Locate the slot in the upper left corner. Slide the locking tab up and swing the cover open.
- **Frame 5:** Slide the locking tab up, loosen the right-hand cover screw and remove the cover.
- **Frame 6:** Loosen the two screws on the bottom drive cover and slide the bottom cover down and out. Loosen the two screws on the top cover and remove the cover.

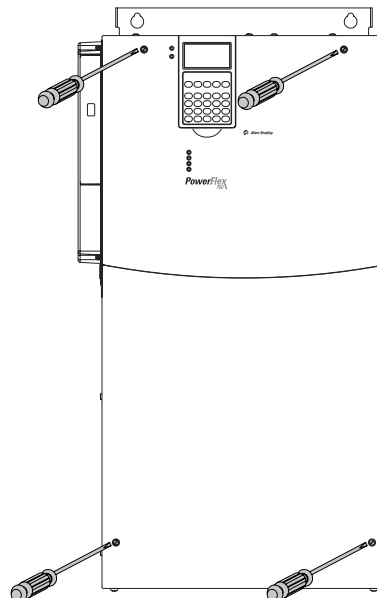
Frames 1...4



Frame 5



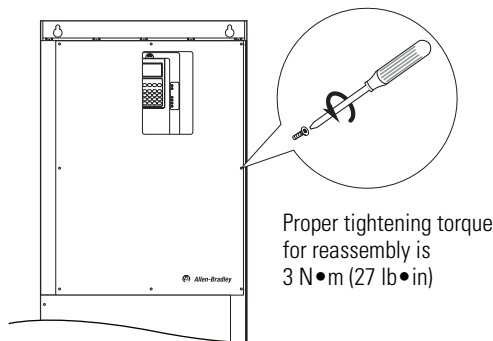
Frame 6



Frames 9...14

- **Frame 9:** Remove the eight POZIDRIV screws that secure the top cover to the drive and remove the cover.
- **Frame 10...14:** Open the enclosure door on the bay that holds the control frame.

Frame 9



Step 3: Remove the Control Cassette from the Drive

Frames 1...6

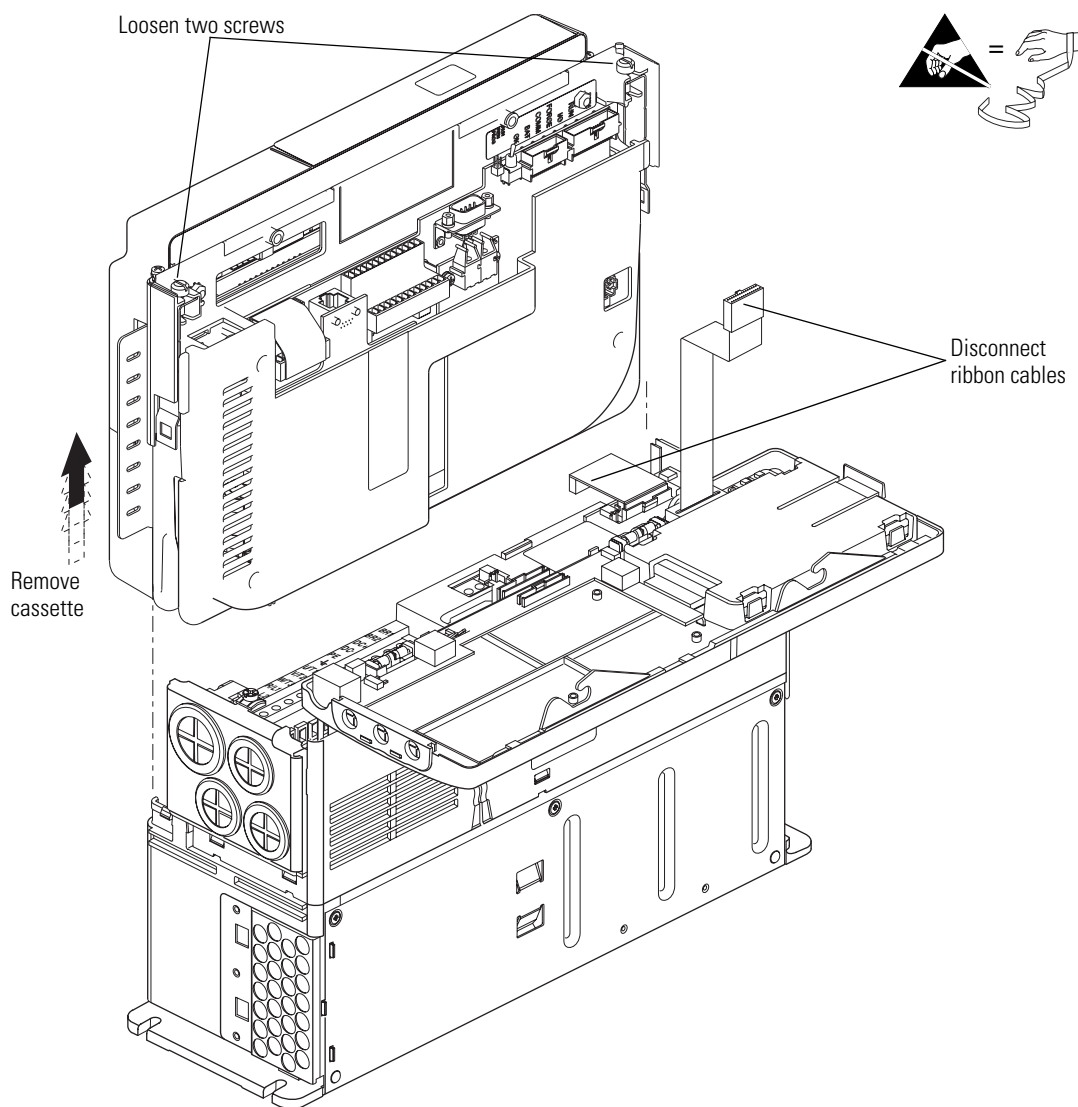
See [page 3](#) for [Frames 9...14](#) control cassette removal instructions.

1. If necessary, disconnect any fiber-optic ControlNet and SynchLink cables from the control assembly.



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2. Disconnect any remaining I/O and communications cables from the control assembly.
3. Disconnect the ribbon cables that connect to the main control board.
4. Loosen the two screws on the front of the cassette.
5. Remove the cassette from the drive chassis.



Frames 9...14

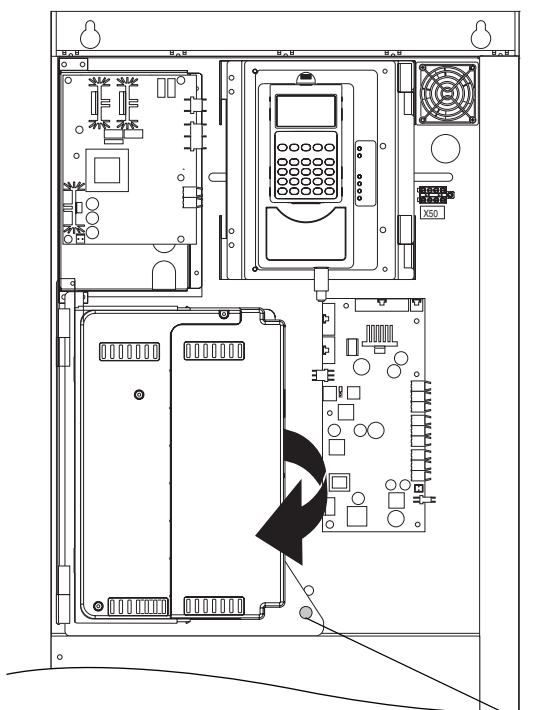
1. If necessary, disconnect any fiber-optic ControlNet and SynchLink cables from the control assembly.



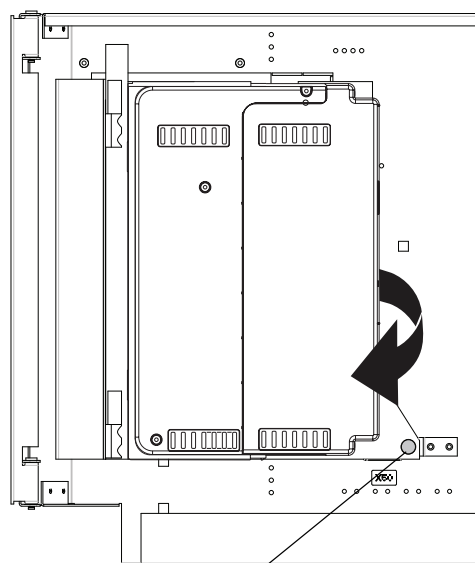
ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors.

2. Disconnect any remaining I/O and communications cables from the control assembly.
3. Disconnect the ribbon cables from the main control board.
4. Loosen the captive screw on the control assembly mounting plate and swing the control assembly mounting plate away from the control frame.

Frame 9



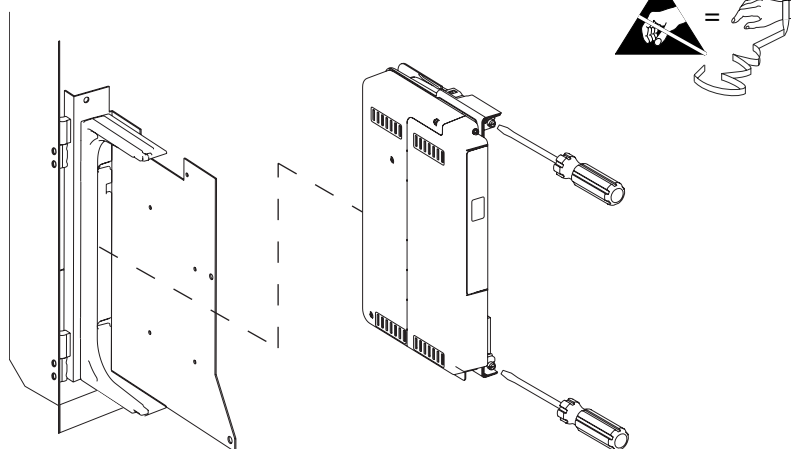
Frames 10...14



Loosen captive screw and swing mounting plate away from drive.

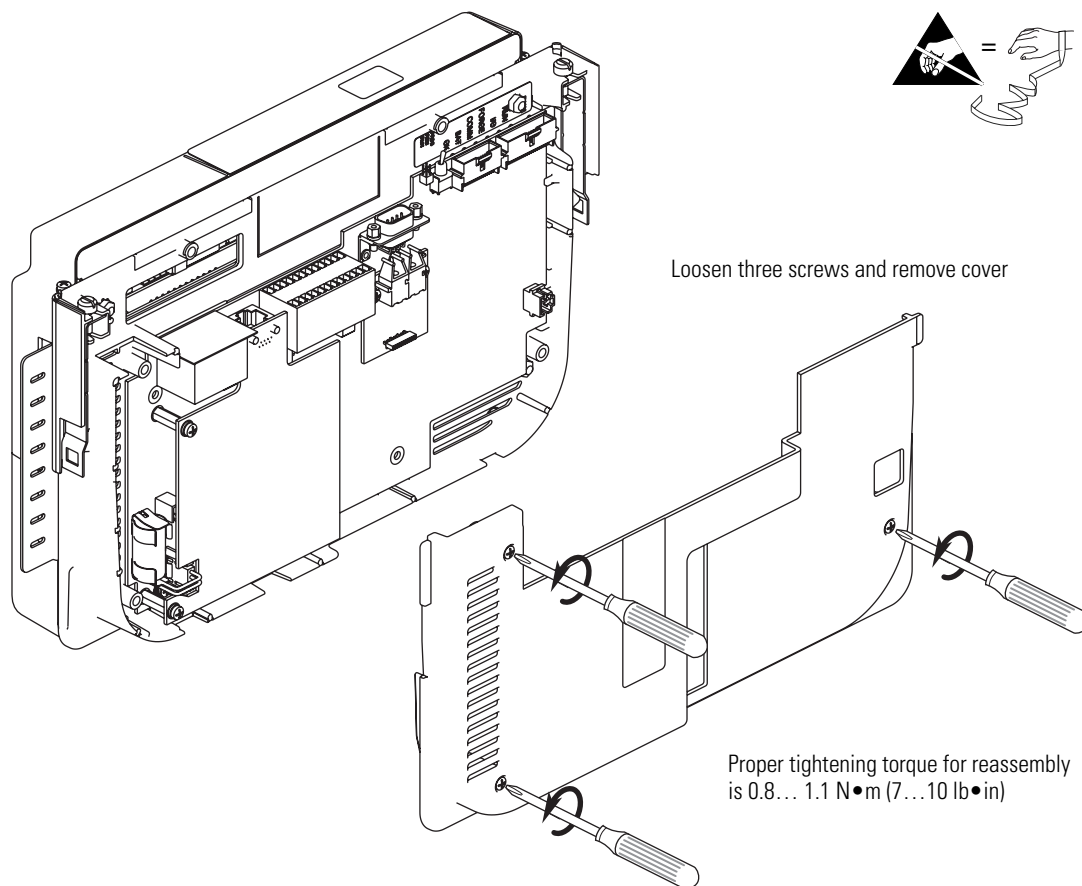
5. Loosen the two mounting screws on the front of the control assembly and slide the control cassette off the mounting bracket.

Frame 9 shown



Step 4: Remove the Inside Cover from the Control Cassette

- Loosen the three screws on the face of the front cover and remove the cover.

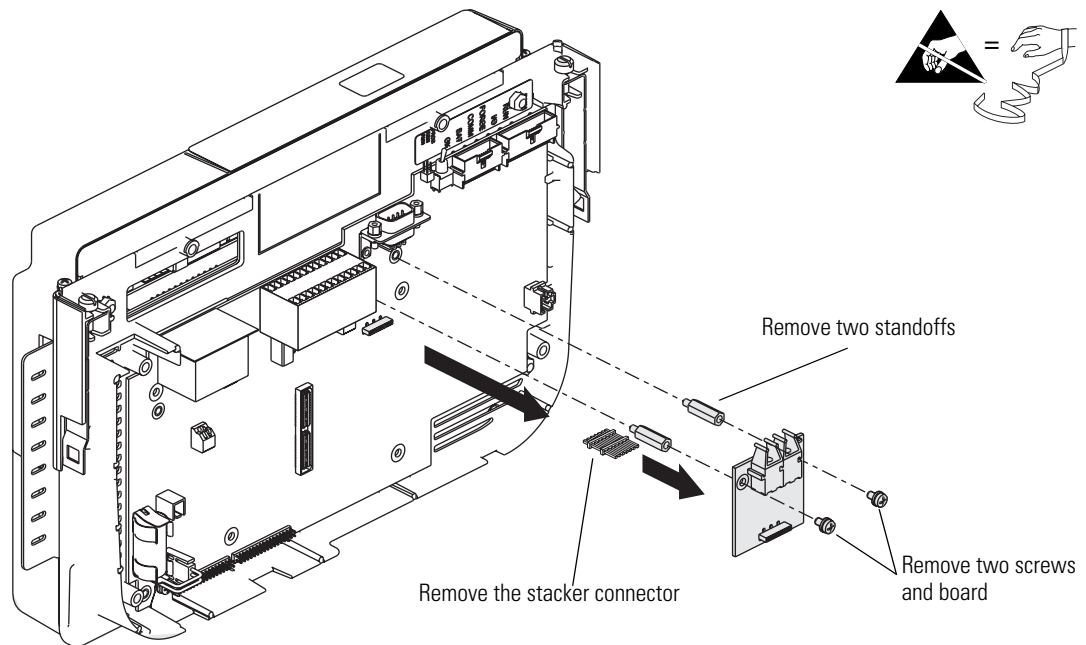


Step 5: Remove the Existing SynchLink Board

If you are installing a new SynchLink board only, continue with Step 6: [Install the New SynchLink Board on page 8](#).

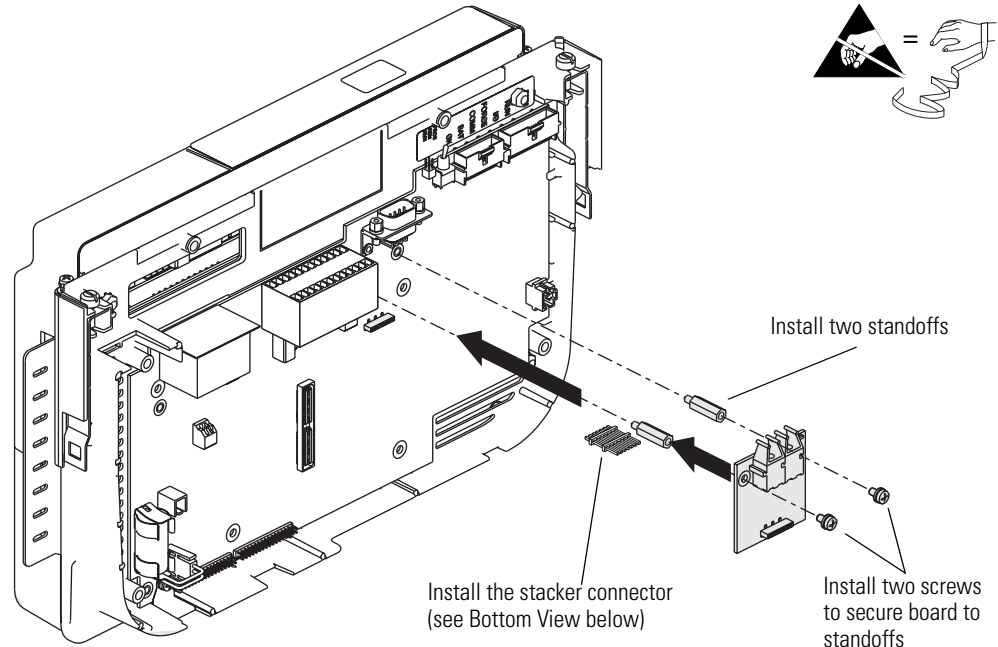
If you are replacing an existing SynchLink board continue with these steps.

1. Remove the two screws that secure the SynchLink board to the standoffs on the main control board and remove the SynchLink board from the stacker connector.
2. Remove the stacker connector from the mating connector on the main control board.
3. Remove the two standoffs from the main control board.

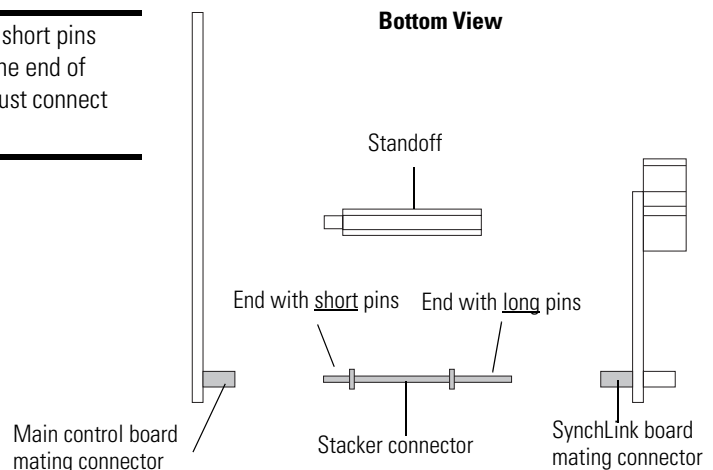


Step 6: Install the New SynchLink Board

1. Secure the two standoffs to the main control board. Tighten to 0.8... 1.1 N•m (7...10 lb•in).
2. Insert the short pins of the stacker connector into the mating connector on the main control board. See the **Important** statement below.
3. Connect the mating connectors of the new SynchLink board to the long pins of the stacker connector. See the **Important** statement below.
4. Secure the SynchLink board to the standoffs using the two screws provided. Tighten to 0.8... 1.1 N•m (7...10 lb•in).



IMPORTANT The end of the stacker connector with the short pins must connect to the main control board. The end of the stacker connector with the long pins must connect to the SynchLink board.



Step 7: Install the Control Cassette Inside Cover

Install the control cassette inside cover in the reverse order of removal. Refer to Step 4: [Remove the Inside Cover from the Control Cassette on page 6](#).

Step 8: Install the Control Cassette in the Drive

Install the control cassette in the reverse order of removal. Refer to Step 3: [Remove the Control Cassette from the Drive on page 4.](#)

Step 9: Connect the SynchLink Cables

Class 1 LED Product

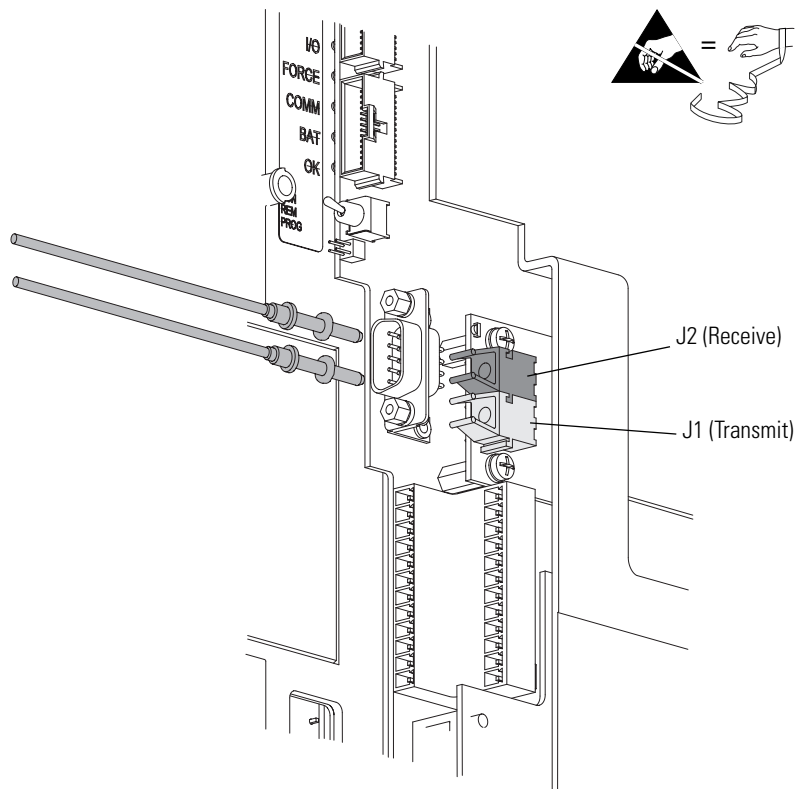


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- Connect the fiber-optic cables to the J1 (transmit) and J2 (receive) connectors on the SynchLink board. Push the plug into the socket until it produces an audible click.

IMPORTANT Minimum inside bend radius for SynchLink fiber-optic cable is 25.4 mm (1 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases with decreased inside bend radii.

IMPORTANT Do not overtighten tie-wraps.

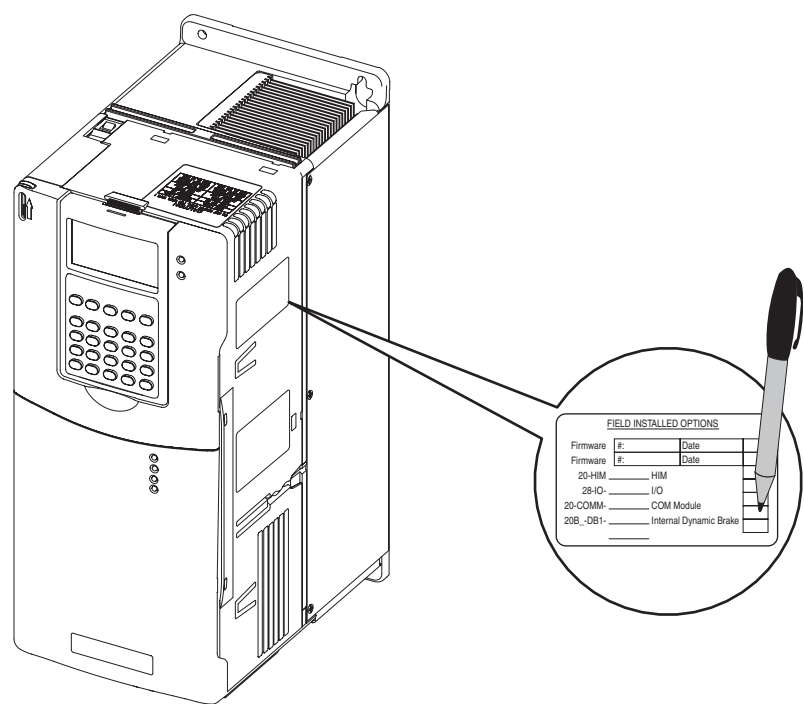


Step 10: Close/Install the Drive Cover(s)

Close/Install the drive cover(s) in the reverse of removal. Refer to Step 2: [Open/Remove the Drive Cover\(s\) on page 3.](#)

Step 11: Document the Change

Document the SynchLink board installation on the “Field Installed Options” label. Use the blank line if you are installing the SynchLink board in a drive that was manufactured without it.



TIP Use the packing material from the new SynchLink board to return the replaced SynchLink board.

Additional Information

Refer to *The SynchLink Design Guide*, publication 1756-TD008, when planning and connecting the SynchLink network.

Table 1 - SynchLink Cables and Accessories

Description	Cat. No.
3 M Fiber-Optic Link (Qty 2)	1403-CF 003
5 M Fiber-Optic Link (Qty 2)	1403-CF 005
10 M Fiber-Optic Link (Qty 2)	1403-CF 010
500 M Fiber-Optic Bulk	1403-CF BLK
Termination Kit	1403-NTOL
Connector (Qty 10)	1403-N10
Splice Bushing (Qty 5)	1403-N11
Pulling Bullet	1403-N12
Fiber Stripper Tool	1403-N13
SynchLink Fiber-Hub, 1 input, Base	1751-SLBA
SynchLink Fiber-Hub, 4 output, "Star" Splitter	1751-SL4SP
SynchLink Bypass Switch	1751-SLBP/A

Table 2 - Fiber-Optic Cable Assembly Specifications

Parameter	Value
Connecting Cables	200/230 micron HCS (Hard Clad Silica) Versalink V-System Lucent Technologies, Specialty Fibers Technology Division
Maximum Cable Length	300 meters with no more than one splice or one adapter
Minimum Cable Length	1 meter
Minimum inside bend radius	25.4mm (1 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases with decreased inside bend radii.
Operating Wavelength	650 nm (Red)
Data Rate	5 Mbps
Maximum Node Count	10 - Daisy Chain 256 - Star Configuration

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