

# Low-profile Connector Kit for I/O and Cascading Safe Torque-off Signals

Catalog Number 2090-K6CK-D44S0

## About the Low-profile Connector Kit

The low-profile 44-pin connector kit provides termination points for I/O and safe torque-off connections on the IOD connector of Kinetix® 6200 and Kinetix 6500 servo drives. When used with the 2094-xx02x-M0x-S0 (safe torque-off) control modules, you can use this kit and 2090-CS0SDSDS-AAxx safe torque-off cables to cascade the safe torque-off signals from one drive to another. This kit also includes two identical motion-allowed jumpers that you install when the safe torque-off functionality of 2094-xx02x-M0x-S0 control modules is not desired.

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**IMPORTANT** This kit and the cables apply to only 2094-xx02x-M0x-S0 (safe torque-off) control modules. They do not apply to 2094-xx02x-M0x-S1 (safe speed) control modules.

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In addition, this kit provides access to the digital input connections for standard cables or discrete wires. Refer to the Kinetix 6200 and Kinetix 6500 Modular Multi-axis Servo Drive User Manual, publication [2094-UM002](#), for more information on wiring digital inputs.

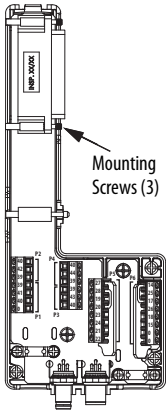
Refer to the Kinetix 6200 and Kinetix 6500 Safe Torque-off Safety Reference Manual, publication [2094-RM002](#), for more information on wiring safe torque-off functions.

## Safe Torque-off Cables

Safe torque-off cables for cascading drive-to-drive connections are available in three lengths.

| Cable Cat. No.     | Length          | Description   |
|--------------------|-----------------|---|
| 2090-CS0SDSDS-AA02 | 0.2 m (7.1 in.) | Drive-to-drive connections (single-wide IAM or AM power module) |
| 2090-CS0SDSDS-AA03 | 0.3 m (1.0 ft)  | Drive-to-drive connections (double-wide IAM or AM power module) |
| 2090-CS0SDSDS-AA10 | 1.0 m (3.2 ft)  | Connect to next 2094 power rail or other safe torque-off device |

## Install the Low-profile Connector Kit



Mounting  
Screws (3)

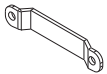
Follow these steps to form a compact connection on I/O and safety wires.

1. Push the insulation down-and-over itself.
2. Move the insulation so it butts against the outside wall of the cover.
3. Tape or shrink-wrap the end of the insulation to the cable.

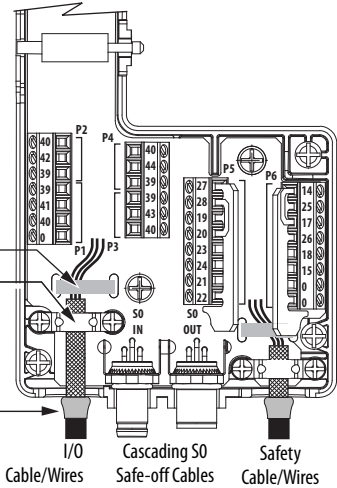
Use tie wraps (2) for stress relief.

Use shield clamps (2) to maximize contact with cable shield for high-frequency bonding.

Shrink-wrapped Insulation



If necessary, turn clamps over to hold small wires securely.

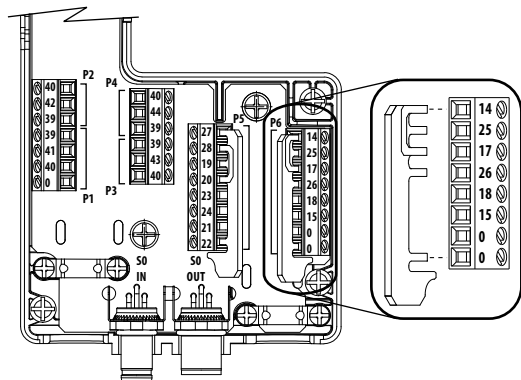


| Attribute                     | 2090-K6CK-D4450  |
|-------------------------------|--|
| Cascading cable connectors    | M8 sockets (female) S0 output connector<br>M8 pins (male) S0 input connector |
| Screw terminal wire size      | 0.2 . . . 0.75 mm <sup>2</sup> (24 . . . 18 AWG)                             |
| Recommended wire strip length | 5 mm (0.2 in.) single conductor  |
| Recommended torque            |  |
| Mounting screw                | 0.4 N•m (3.5 lb•in)  |
| Terminal screws               | 0.2 N•m (2.1 lb•in)  |
| Clamp and cover screws        | 0.4 N•m (3.5 lb•in)  |



**ATTENTION:** This connector kit contains electrostatic discharge (ESD) sensitive parts that can be damaged if you do not follow ESD control procedures. If you are unfamiliar with ESD control procedures, refer to Guarding Against Electrostatic Damage, publication [8000-4.5.2](#), or any other applicable ESD protection handbook.

## Connector Data



Motion-allowed Jumper Installation Example for P5 and P6 Connectors (P6 is shown)

Applies to 2094-xx02x-M0x-S0 (safe torque-off) control modules. Kit includes two identical jumpers. Install jumpers when safe torque-off functionality is not used.

Pin numbering corresponds to the IOD (44 pin) connector. Pins 39 and 40 are given multiple terminals to accommodate connections for each of the inputs.

### P5 (safety) Terminal Block

| Drive Pin | Kit Pin | Signal     |
|-----------|---------|------------|
| IOD-19    | P5-19   | SS_IN_CH0  |
| IOD-20    | P5-20   | SS_IN_CH1  |
| IOD-21    | P5-21   | SS_OUT_CH0 |
| IOD-22    | P5-22   | SS_OUT_CH1 |
| IOD-23    | P5-23   | SS_IN_CH2  |
| IOD-24    | P5-24   | SS_IN_CH3  |
| IOD-27    | P5-27   | TEST_OUT_0 |
| IOD-28    | P5-28   | TEST_OUT_1 |

### P6 (safety) Terminal Block

|        |       |           |
|--------|-------|-----------|
| IOD-14 | P6-14 | 24VPWR    |
| IOD-15 | P6-15 | 24VCOM    |
| IOD-17 | P6-17 | SPWR      |
| IOD-18 | P6-18 | SCOM      |
| IOD-25 | P6-25 | RESET_REF |
| IOD-26 | P6-26 | RESET_IN  |
| Shield | P6-0  | Shield    |
| Shield | P6-0  | Shield    |

### P1 (I/O) Terminal Block

| Drive Pin | Kit Pin | Signal  |
|-----------|---------|---------|
| IOD-39    | P1-39   | 24VPWR  |
| IOD-41    | P1-41   | INPUT 1 |
| IOD-40    | P1-40   | 24VCOM  |
| Shield    | P1-0    | Shield  |

### P2 (I/O) Terminal Block

|        |       |         |
|--------|-------|---------|
| IOD-40 | P1-40 | 24VCOM  |
| IOD-42 | P1-42 | INPUT 2 |
| IOD-39 | P1-39 | 24VPWR  |

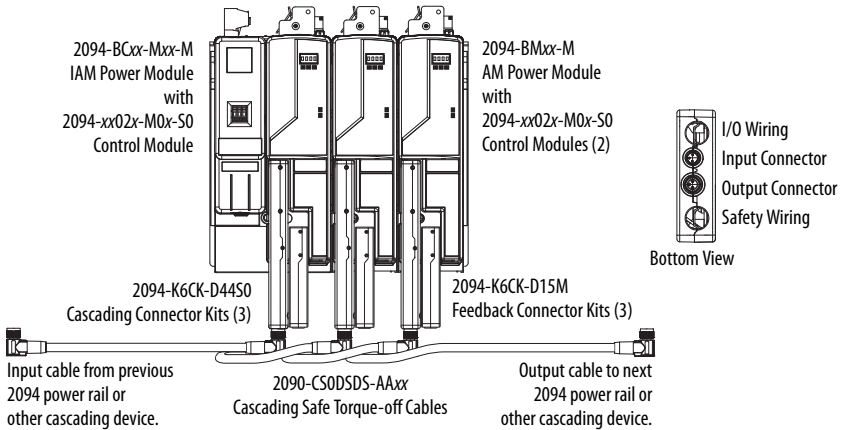
### P3 (I/O) Terminal Block

|        |       |         |
|--------|-------|---------|
| IOD-39 | P1-39 | 24VPWR  |
| IOD-43 | P1-43 | INPUT 3 |
| IOD-40 | P1-40 | 24VCOM  |

### P4 (I/O) Terminal Block

|        |       |         |
|--------|-------|---------|
| IOD-40 | P1-40 | 24VCOM  |
| IOD-44 | P1-44 | INPUT 4 |
| IOD-39 | P1-39 | 24VPWR  |

# Cascading Safe Torque-off Signals



All right-angled cable connectors are keyed to exit left as shown. Cables loop back and cascade to the next drive or other device. Route input wires through the I/O and safety wiring access holes.

## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

| Resource   | Description   |
|--|---|
| Kinetix 6200 and Kinetix 6500 Safe Torque-off Servo Drives Safety Reference Manual, publication <a href="#">2094-RM002</a> | Information on wiring, configuring, and troubleshooting the safe torque-off features of your Kinetix 6200 and Kinetix 6500 drives.      |
| Kinetix 6200 and Kinetix 6500 Modular Multi-axis Servo Drive User Manual, publication <a href="#">2094-UM002</a>           | Information on installing, configuring, startup, troubleshooting, and applications for your Kinetix 6200 and Kinetix 6500 servo drives. |
| Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>                                | Provides general guidelines for installing a Rockwell Automation industrial system.   |

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

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