

Feedback Connector Kit for TL-Series (Bulletin TLY) Servo Motors

Catalog Number 2090-KFBM6-AA

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About the TL-Series Feedback Connector Kit

Use this connector kit to build your own feedback cable for use with any of these TL-Series servo motors

IMPORTANT This kit is compatible only with feedback cables from a TLY-A110, TLY-A120, TLY-A130, TLY-A220, TLY-A230, TLY-A2530, TLY-A2540, or TLY-A310 servo motor.

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
	SHOCK HAZARD: Labels may be on or inside the equipment, for example, drive or motor, to alert people that dangerous voltage may be present.
	BURN HAZARD: Labels may be on or inside the equipment, for example, drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Before You Begin

Identify the wire colors and pinouts specific to a TL-Series motor by referring to the Feedback Connector information on [page 6](#).



ATTENTION: To prevent electrical shock, disconnect the connector, motor, and drive from the power source before installing or servicing.

This device should be used only in an enclosure that prevents exposure to contaminants.



ATTENTION: When installing a cable, restrain it so that uneven tension or flexing at the connector does not occur.

Excessive and uneven force at the cable connector may result in damage to the housing and contacts as the cable flexes.

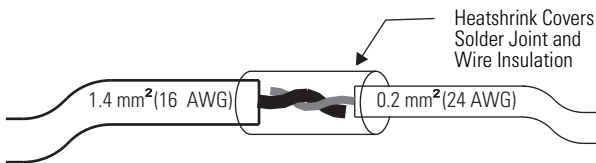
Failure to observe this safety procedure could result in damage to the motor and its components.

You should also refer to the manual for your drive to determine pinouts and wire connections appropriate to these connections.

TL-Series (Bulletin TLY) motors are compatible with these Allen-Bradley drives:

- Kinetix 300
- Kinetix 2000
- Kinetix 6000
- Kinetix 6200
- Kinetix 6500
- Ultra3000
- Ultra5000

If signal wires exceed the maximum size allowed by this connector kit, reduce the wire size as shown in this example.



Refer to the Parts List on [page 4](#) for wire sizes compatible with this connector kit.

Parts List

These items are in the connector kit.

Connector Kit Contents

Item	Qty.	Wire Size mm ² (AWG)	Insulation Diameter mm (in.)	Insulation Strip Length mm (in.)	Tyco AMP Part No.
Feedback sockets	15	0.2...0.6 (24...20)	1.5 max (0.060) max	2.5 (0.1)	66504-9
Return sockets	15	0.08...0.2 (28...24)	1.0 max (0.040) max		66505-9
Housing	1	N/A			205839-3
Backshell ⁽¹⁾	1	N/A			206070-8

(1) The maximum cable diameter, including wiring and jacket material, allowed by this backshell is 11.51 mm (0.45 in.).

Tool List

Use these tools to assemble the connector kit.

IMPORTANT Tools are not provided in the connector kit.

Required Tools

Item	Tyco AMP Part No.
Hand crimp tool - feedback contacts	58448-2
Extraction tool - ground contact	305183
Extraction and insertion tool - feedback contacts	91285-1
Wire cutter	N/A
Wire stripper	
Screwdriver, size 0 or 1 Phillips	
Needle-nose pliers (optional)	

Assemble the Feedback Connector Kit

Follow these steps to assemble your TL-Series connector kit.

1. Slide the backshell onto the cable.
2. Remove the insulation from the end of the wires to expose a maximum of 2.5 mm (0.1 in.) of wire.
3. Crimp a socket on each wire.

Refer to the [Parts List](#) on [page 4](#) for the correct socket type. Refer to the [Feedback Connector](#) table on [page 6](#) for the correct wire color, and connector position for each wire.

4. Insert the socket of each wire into the appropriate position at the back of the connector housing.
5. Ground the cable shield.
6. Screw the backshell onto the connector housing.
7. Select the type of backshell clamp, and determine its appropriate orientation.

The type and orientation of the backshell clamp is dependent on your application.

8. Tighten the backshell clamp screws until the backshell clamp applies sufficient pressure on the cable jacket to retain the cable.

IMPORTANT

Do not over-tighten the backshell clamp screws.
Applying excessive force may damage the threads in the plastic backshell.

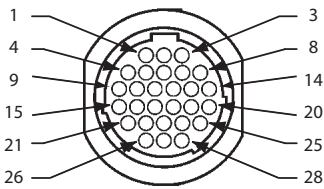
Feedback Connector

This table shows the pin locations for the feedback connector on a TL-Series motor with either an absolute encoder, or an incremental encoder.

Absolute Encoder Connections		
Pin	Signal	Wire Color ⁽¹⁾
1...5	Reserved	—
6	BAT+	Brown
7...12	Reserved	—
13	DATA+	Blue
14	DATA-	Blue/Black
15...21	Reserved	—
22	EPWR 5V	Red
23	ECOM & BAT-	Black
24	SHIELD	Drain Wire
25...28	Reserved	—

Incremental Encoder Connections		
Pin	Signal	Wire Color ⁽¹⁾
1...8	Reserved	—
9	AM+	Green
10	AM-	Green/Black
11	BM+	Blue
12	BM-	Blue/Black
13	IM+	Yellow
14	IM-	Yellow/Black
15	S1+	Grey/Black
16	S1-	Grey
17	S2+	Brown/Black
18	S2-	Brown
19	S3+	White/Black
20	S3-	White
21	Reserved	—
22	EPWR 5V	Red
23	ECOM	Black
24	SHIELD	Drain Wire
25...28	Reserved	—

TL-Series Feedback Connector Pinouts



Front of Tyco AMP 205839-3 Housing

(1) The wire is internal to the TL-Series motor. For consistency, wires of the same color should be used in any cable.

Additional Resources

These documents contain additional information about related Rockwell Automation products.

Resource	Description
Kinetix 300 Single-axis Servo Drives User Manual, publication 2097-UM001	How to install, set up, and troubleshoot a servo-drive system.
Kinetix 2000 Multi-axis Servo Drives User Manual, publication 2093-UM001	
Kinetix 6000 Multi-axis Servo Drives User Manual, publication 2094-UM001	
Kinetix 6200 and Kinetix 6500 Modular Multi-axis Servo Drives User Manual, publication 2094-UM002	
Ultra3000 Digital Servo Drive Installation Manual, publication 2098-IN003	
Ultra3000 Digital Servo Drive Integration Manual, publication 2098-IN005	
Ultra5000 Intelligent Positioning Drives Installation Manual, publication 2098-IN001	
Allen-Bradley Industrial Automation Glossary, publication AG-7.1	A glossary of industrial automation terms and abbreviations.
System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001	Information, examples, and techniques designed to minimize system failures caused by electrical noise.
Kinetix Motion Control Selection Guide, publication GMC-SG001	Specifications, motor/servo-drive system combinations, and accessories for Kinetix motion control products.

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

Rockwell Automation Support

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For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html , or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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