

# Bulletin 2097 I/O Terminal Expansion Block

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## About the I/O Terminal Expansion Block

The I/O terminal expansion block lets you wire I/O directly to the Kinetix® 300 or Kinetix 350 drive without the use of an extension cable and a separate terminal block. The I/O terminal expansion block securely mounts to the drive with its own mounting screws, simplifying I/O wiring.

This publication provides installation and wiring instructions for the I/O terminal expansion block. For more information refer to the user manual available for your drive listed in [Additional Resources on page 8](#).

## 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 [SG-1.1](#) available from your local Rockwell Automation® sales office or online at <http://www.rockwellautomation.com/literature/>) 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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

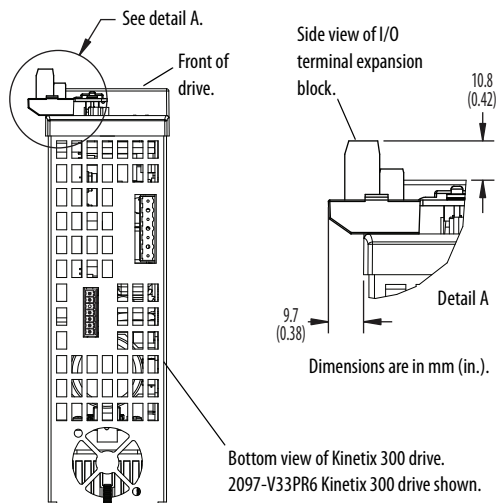
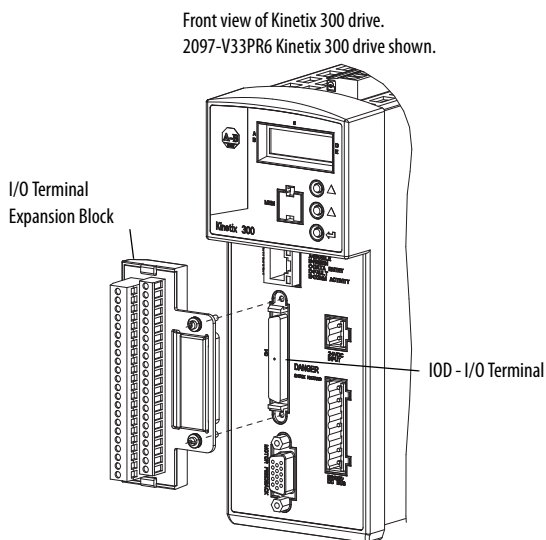
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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	<b>WARNING:</b> 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.
	<b>ATTENTION:</b> 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.
	<b>SHOCK HAZARD:</b> Labels may be on or inside the equipment, for example, drive or motor, to alert people that dangerous voltage may be present.
	<b>BURN HAZARD:</b> Labels may be on or inside the equipment, for example, drive or motor, to alert people that surfaces may reach dangerous temperatures.
<b>IMPORTANT</b>	Identifies information that is critical for successful application and understanding of the product.

## Before You Begin

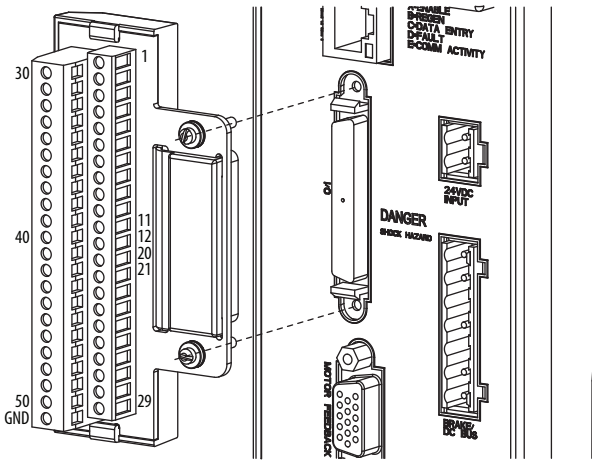
The I/O terminal expansion block is attached to the IOD - I/O terminal on the front of the drive. Using the expansion block requires additional cabinet height and width.



## Install the I/O Terminal Expansion Block

Follow these steps to install your I/O terminal expansion block.

1. Wire the I/O terminal expansion block by using the pinout table on [page 5](#).
2. Connect the I/O terminal expansion block to the I/O connector on the front of the Kinetix 300 or Kinetix 350 drive by using a screwdriver and torque to 28.2 N•cm (2.5 lb•in).



## Wire the I/O Terminal Expansion Block

Use the following pinout table to wire the I/O from your system.

### I/O Terminal Expansion Block Pinout when used with Kinetix 300 Servo Drive

IOD Pin	Description	Signal
1	Master encoder A+/Step+ input	MA+
2	Master encoder A-/Step- input	MA-
3	Master encoder B+/Direction+ input	MB+
4	Master encoder B-/Direction- input	MB-
5 and 6	Reserved	—
7	Buffered encoder output: channel A+	BA+
8	Buffered encoder output: channel A-	BA-
9	Buffered encoder output: channel B+	BB+
10	Buffered encoder output: channel B-	BB-
11	Buffered encoder output: channel Z+	BZ+
12	Buffered encoder output: channel Z-	BZ-
13...21	Reserved	—
22	Analog common	ACOM
23	Analog output (max 10 mA)	AO
24	Positive (+) of analog signal input	AIN1+
25	Negative (-) of analog signal input	AIN1-
26	Digital input group ACOM terminal	IN_A_COM
27	Digital input A1	IN_A1
28	Digital input A2	IN_A2
29	Digital input A3	IN_A3
30	Digital input A4	IN_A4
31	Digital input group BCOM terminal	IN_B_COM
32	Digital input B1	IN_B1
33	Digital input B2	IN_B2
34	Digital input B3	IN_B3
35	Digital input B4	IN_B4
36	Digital input group CCOM terminal	IN_C_COM
37	Digital input C1	IN_C1
38	Digital input C2	IN_C2

**I/O Terminal Expansion Block Pinout when used with Kinetix 300 Servo Drive (cont.)**

<b>IOD Pin</b>	<b>Description</b>	<b>Signal</b>
39	Digital input C3	IN_C3
40	Digital input C4	IN_C4
41	Ready output collector	RDY+
42	Ready output emitter	RDY-
43	Programmable output #1 collector	OUT1-C
44	Programmable output #1 emitter	OUT1-E
45	Programmable output #2 collector	OUT2-C
46	Programmable output #2 emitter	OUT2-E
47	Programmable output #3 collector	OUT3-C
48	Programmable output #3 emitter	OUT3-E
49	Programmable output #4 collector	OUT4-C
50	Programmable output #4 emitter	OUT4-E

**I/O Terminal Expansion Block Pinout when used with Kinetix 350 Servo Drive**

<b>IOD Pin</b>	<b>Description</b>	<b>Signal</b>
1...25	Reserved	—
26	+/- Overtravel, enable and home common	COM
27	Negative hardware overtravel	NEG_OT
28	Positive hardware overtravel	POS_OT
29	Drive enable	ENABLE
30	Home switch	HOME_SW
31...35	Reserved	—
36	Registration common	REG_COM
37...38	Reserved	—
39	Registration input	REG
40...42	Reserved	—
43	Brake release positive	BRAKE+
44	Brake release negative	BRAKE-
44...50	Reserved	—

**Specifications**

<b>Attribute</b>	<b>2097-TB1</b>
Wire gauge	1.5...0.2 mm <sup>2</sup> (16...24 AWG)
Strip length	5...6 mm (0.20...0.24 in.)
Torque value	28.2 N·cm (2.5 lb·in)

# Additional Resources

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

Resource	Description
Kinetix 300 EtherNet/IP Indexing Servo Drives User Manual, publication <a href="#">2097-UM001</a>	Provides instructions on mounting and programming the drive and lists technical specifications.
Kinetix 350 Single-axis EtherNet/IP Servo Drives User Manual, publication <a href="#">2097-UM002</a>	
Kinetix 300 EtherNet/IP Indexing Servo Drives Installation Instructions, publication <a href="#">2097-IN001</a>	Provides instructions on mounting the drive and lists technical specifications.
Kinetix 350 Single-axis EtherNet/IP Servo Drives Installation Instructions, publication <a href="#">2097-IN008</a>	
Kinetix Servo Drives Specifications Technical Data, publication <a href="#">GMC-TD003</a>	Provides teach-in specifications for Kinetix servo drive products and accessories.

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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