



# **1769 Compact I/O Communication Bus Expansion Cables**

(Cat. No. 1769-CRR1, -CRR3, -CLL1, -CLL3, -CRL1, -CRL3)

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## For More Information

For	Refer to this Document	Pub. No.
Information on how to install and use your 1769-ADN Adapter	Compact™ I/O 1769-ADN DeviceNet Adapter Installation Instructions	1769-IN001
Installation guides for 1769 Discrete Compact I/O module 1769-IA8I	Compact 1769-IA8I Individually Isolated 120V ac Input Module	1769-IN012
Installation guides for 1769 Discrete Compact I/O module 1769-IA16	Compact 1769-IA16 120V ac Input Module Installation Instructions	1769-IN006
Installation guides for 1769 Discrete Compact I/O module 1769-OW8	Compact 1769-OW8 AC/DC Relay Output Module Installation Instructions	1769-IN051
Installation guides for 1769 Discrete Compact I/O module 1769-OW8I	Compact 1769-OW8I Individually Isolated AC/DC Relay Output Module	1769-IN053
Installation guides for 1769 Discrete Compact I/O module 1769-IQ16	Compact 1769-IQ16 24V dc Sink/Source Input Module Installation Instructions	1769-IN007
Installation guides for 1769 Discrete Compact I/O module 1769-OB16	Compact 1769-OB16 Solid State 24V dc Source Output Module Installation Instructions	1769-IN054
Installation guides for 1769 Discrete Compact I/O module 1769-OB16P	Compact 1769-OB16P Solid State 24V dc Source Output Module Installation Instructions	1769-IN052
Installation guides for 1769 Discrete Compact I/O module 1769-OA8	Compact 1769-OA8 100 to 240V ac Solid State Output Module Installation Instructions	1769-IN055
Installation guides for 1769 Discrete Compact I/O module 1769-OV16	Compact 1769-OV16 Solid State 24V dc Sink Output Module Installation Instructions	1769-IN056
Installation guides for 1769 Discrete Compact I/O module 1769-IQ6XOW4	Compact 1769-IQ6XOW4 24V dc Sink/Source Input AC/DC Relay Output Module Installation Instructions	1769-IN050
Installation guides for 1769 Discrete Compact I/O module 1769-IM12	Compact 1769-IM12 240V ac Input Module Installation Instructions	1769-IN011
Installation guides for 1769 Analog Compact I/O module 1769-IF4	Compact 1769-IF4 Analog Input Module Installation Instructions	1769-IN048
Installation guides for 1769 Analog Compact I/O module 1769-OF2	Compact 1769-OF2 Analog Output Module Installation Instructions	1769-IN049
Installation guides for 1769 Analog Compact I/O module 1769-IF4XOF2 * For Series B DeviceNet adapters only	Compact 1769-IF4XOF2 Combination Analog Module Installation Instructions	1769-IN057
Information on how to install and use your 1769-IF4XOF2 module	Compact 1769-IF4XOF2 8-Bit Low-Resolution Analog I/O Combination Module User Manual	1769-UM008
Installation guides for 1769 High Speed Counter module 1769-HSC * For Series B DeviceNet adapters only	Compact 1769-HSC High Speed Counter Module Installation Instructions	1769-IN030
Installation guides for 1769 Thermocouple/mV module 1769-IT6	Compact 1769-IT6 Thermocouple/mV Input Module Installation Instructions	1769-IN026

For	Refer to this Document	Pub. No.
Information on how to install and use your 1769-IT6 module	Compact 1769-IT6 Thermocouple/mV Input Module User Manual	1769-UM004
Installation guides for 1769 RTD/resistance module 1769-IR6	Compact 1769-IR6 RTD/Resistance Input Module Installation Instructions	1769-IN027
Information on how to install and use your 1769-IR6 module	Compact 1769-IR6 RTD/Resistance Input Module User Manual	1769-UM005
Installation guides for 1769 power supplies	Compact 1769 Expansion I/O Power Supplies Installation Instructions	1769-IN028
Installation guides for 1769 cables	Compact I/O Communication Bus Expansion Cables Installation Instructions	1769-IN014
Installation guides for 1769 end caps and terminators	Compact I/O End Caps/Terminators Installation Instructions	1769-IN015

If you would like a manual, you can:

- download a free electronic version from the internet:  
**www.ab.com/micrologix** or **www.theautomationbookstore.com**
- purchase a printed manual by:
  - contacting your local distributor or Rockwell Automation representative
  - visiting **www.theautomationbookstore.com** and placing your order
  - calling 1 . 800 . 963 . 9548 (USA/Canada) or  
001 . 330 . 725 . 1574 (Outside USA/Canada)

## Hazardous Location Considerations

This product must be installed in an enclosure. This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only. The following ATTENTION statement applies to use in hazardous locations.

### ATTENTION



#### EXPLOSION HAZARD

- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not connect or disconnect components unless power has been switched off or the area is known to be non-hazardous.
  - All wiring must comply with N.E.C. article 501-4(b).

## Environnements dangereux

Cet équipement est conçu pour être utilisé dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux. La mise en garde suivante s'applique à une utilisation dans des environnements dangereux.

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### ATTENTION



#### DANGER D'EXPLOSION

- La substitution de composants peut rendre cet équipement impropre à une utilisation en environnement de Classe 1, Division 2.
  - Ne pas remplacer de composants ou déconnecter l'équipement sans s'être assuré que l'alimentation est coupée.
  - Ne pas connecter ou déconnecter des composants sans s'être assuré que l'alimentation est coupée.
  - Ce produit doit être installé dans une armoire.
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## Overview

The 1769-CLLx, -CRRx, and -CRLx cables extend the 1769 bus communication lines. A maximum of two cables can be used in a 1769 system, allowing for three groups or banks of I/O modules. Each bank requires its own power supply. See System Configurations on page 6.

### TIP



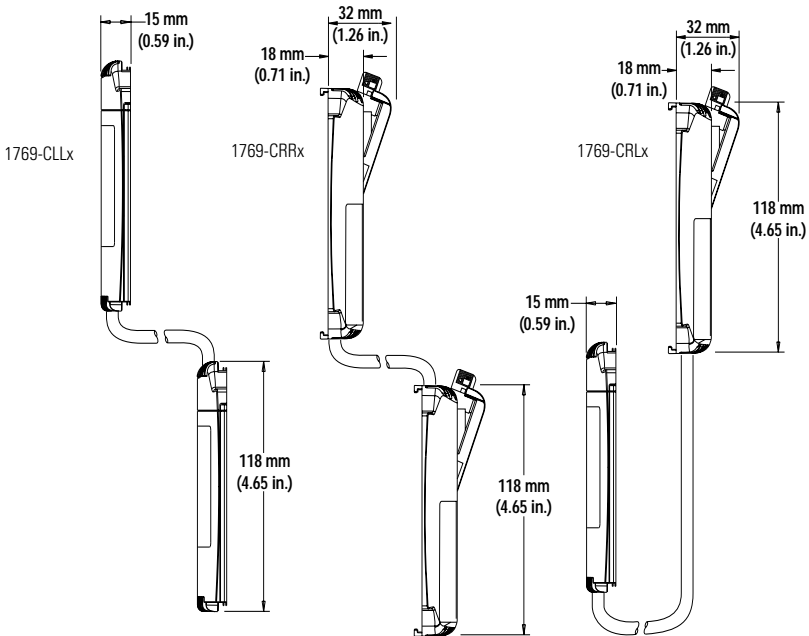
- Some controllers do not support three I/O banks. Refer to your controller's manual for details.
- Some controllers provide power to the I/O bank. Refer to your controller's manual for details.

## Cable Types and Lengths

Table 1

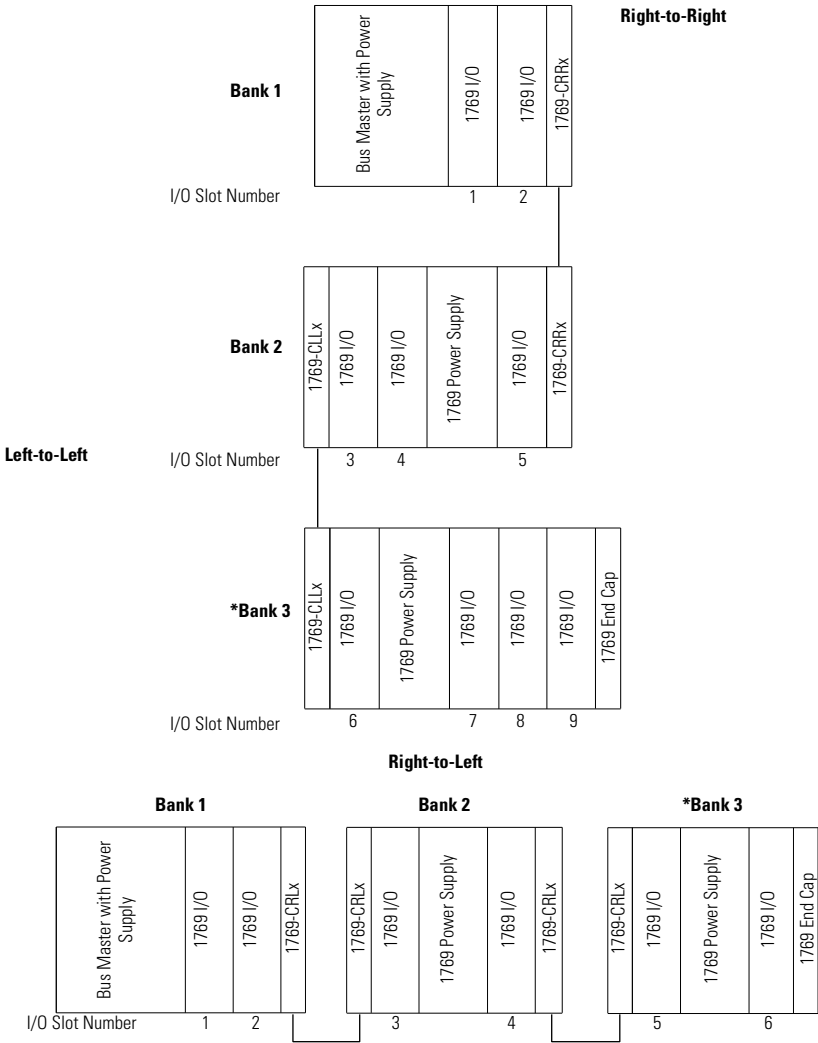
Catalog Number	Cable Type	Length <sup>(1)</sup>
1769-CLL1	Left bank-to-left bank expansion	1 ft. (305 mm)
1769-CLL3	Left bank-to-left bank expansion	3.28 ft. (1 m)
1769-CRR1	Right bank-to-right bank expansion	1 ft. (305 mm)
1769-CRR3	Right bank-to-right bank expansion	3.28 ft. (1 m)
1769-CRL1	Right bank-to-left bank expansion	1 ft. (305 mm)
1769-CRL3	Right bank-to-left bank expansion	3.28 ft. (1 m)

<sup>(1)</sup> Approximate cable length is measured from end-to-end of the cable only.



## System Configurations

The following illustration show examples of two valid system setups.



**TIP**



- When configuring your system using a MicroLogix 1500 controller, only one expansion cable, one expansion power supply, and a maximum of eight I/O modules may be used allowing for two banks of I/O modules (maximum). \* An adapter allows three banks and 30 modules maximum.

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## Installation

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### Prevent Electrostatic Discharge

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**ATTENTION**

Electrostatic discharge can damage integrated circuits or semiconductors if you touch bus connector pins or the terminal block. Follow these guidelines when handling 1769 Compact I/O components:

- Touch a grounded object to discharge static potential.
  - Wear an approved wrist-strap grounding device.
  - Do not touch the bus connector or connector pins.
  - Do not touch circuit components inside the module.
  - If available, use a static-safe workstation.
  - When not in use, keep cables in static shield packaging.
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### Remove Power

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**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

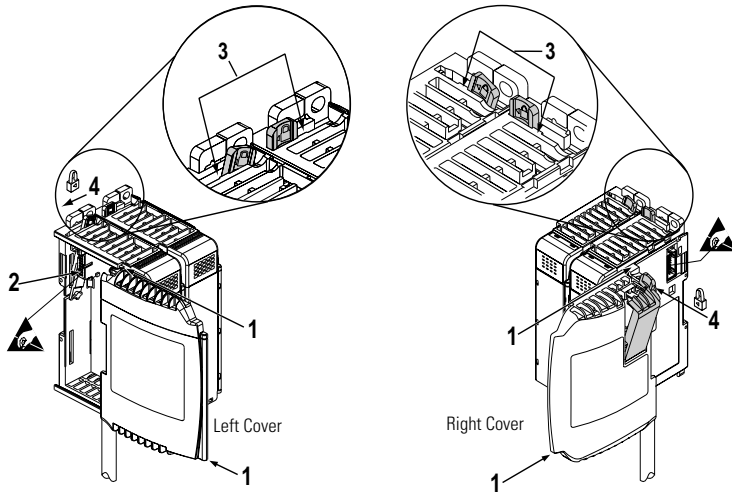
Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

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## Attaching Cables

**TIP**


- A maximum of two expansion cables may be used in a 1769 system.
- Each I/O bank requires its own power supply. The 1769 cables extend the 1769 communication bus, but do not extend bus power.



1. Disconnect power
2. Check bus lever position.

Left cover: Make sure the bus lever (4) on the left-most I/O module is in the unlocked (fully right) position.

Right cover: Make sure the bus lever (4) on the right cover is in the unlocked (fully right) position.

3. Use the upper and lower tongue-and-groove slots (1) to secure the cable cover to the module.
4. Move the cable cover back along the tongue-and-groove slots until the bus connectors (2) line up with each other.



5. If necessary, push the bus lever back slightly to clear the bus locking tab (3). Use your fingers or a small screwdriver.
6. To allow communication between the module and the cable connector, move the bus lever firmly to the left (4) until it clicks. Ensure that it is locked firmly in place.

**ATTENTION**

When attaching cables, it is very important that the bus connectors are securely locked together to ensure proper electrical connection.

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**Specifications**


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Approximate Shipping Weight (with carton)	3-foot cables: 350 g (0.77lbs.) 1-foot cables: 300 g (0.66 lbs.)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Operating Temperature	0°C to +60°C (32°F to +140°F)
Operating Humidity	5% to 95% non-condensing
Operating Altitude	2000 meters (6561 feet)
Vibration	Operating: 10 to 500 Hz, 5G, 0.030 inches maximum peak-to-peak Relay Operation: 2G
Shock	Operating: 30G panel mounted (20G DIN rail mounted) Relay Operation: 7.5G panel mounted (5G DIN rail mounted) Non-Operating: 40G panel mounted (30G DIN rail mounted)
Agency Certification	C-UL certified (under CSA C22.2 No. 142) UL 508 listed CE compliant for all applicable directives
Hazardous Environment Class	Class I, Division 2, Hazardous Location, Groups A, B, C, D (UL 1604, C-UL under CSA C22.2 No. 213)

**Notes:**

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