



*Allen-Bradley*

## **Allen-Bradley I/O Modules**

**1732, 1734, 1734D, 1738, 1746,  
1747, 1756, 1761, 1762, 1764,  
1769, 1771, 1790, 1791, 1791D,  
1791P, 1791R, 1792D, 1794,  
1797, 1798, 1799**

**Wiring Diagrams**

**Rockwell  
Automation**

## 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://www.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.

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.

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**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.

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**IMPORTANT**

Identifies information that is critical for successful application and understanding of the product.

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**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.

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**SHOCK HAZARD**

Labels may be located on or inside the drive to alert people that dangerous voltage may be present.

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**BURN HAZARD**

Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures.

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### Introduction

The purpose for showing these connection diagrams here is to illustrate the following attributes of each I/O module, I/O block, or fixed I/O controller:

- the number of inputs and/or outputs
- whether there is a single common for all I/O, a common for a set of I/O separate from other sets of I/O, or a signal return for each I/O circuit so that each I/O circuit is isolated from all others
- whether an output is a current source or a current sink
- whether an input is a source load or a sink load

To fit them into this concise format, these diagrams are intentionally simplified to the point that they do not show the type of cables, twisted pairs, cable shields or the grounding of cable shields. We make an exception where the cable shield must be connected at an I/O terminal.

For those input modules or blocks that can tolerate the leakage current of proximity sensors, we usually show a proximity sensor at one input and hard contacts at the others for ease of illustration.

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**IMPORTANT**

Many of the catalog numbers included in this publication have specific wiring guidelines and recommendations that are listed in the product's technical documentation (e.g. installation instructions or user manuals) but not here because the purpose of this publication is to show connection diagrams and basic information required to wire each I/O module.

For a full description of how to use each of the catalog numbers listed in this publication, see the individual product's technical documentation.

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







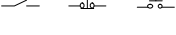
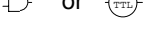
## Abbreviations

In these diagrams we used the following abbreviations:

no	normally open (contact outputs)
nc	normally closed (contact outputs)
n.c.	no connection (do not connect to this terminal)

## Symbols

In these diagrams we used the following symbols:

ac power source	
ac/dc power source	
dc power source	
output load	
current-signal analog sensor	
voltage-signal analog sensor	
RTD	
thermocouple	
3-wire proximity sensor	
4-wire proximity sensor	
hard-contact switching devices	
TTL switching device	

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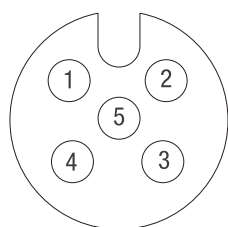
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# 1732 ArmorBlock I/O

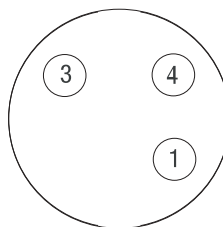
**1732D-8CFGM12**



Self-configuring Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 2 Input or Output B
- Pin 3 Return
- Pin 4 Input or Output A
- Pin 5 Not Used

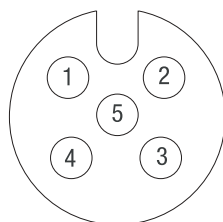
**1732D-8CFGM8**



Self-configuring Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 3 Return
- Pin 4 Input or Output

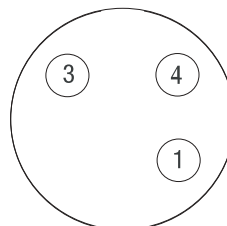
**1732D-IB8M12**



Input Micro-Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 2 Input B
- Pin 3 Return
- Pin 4 Input A
- Pin 5 Not used

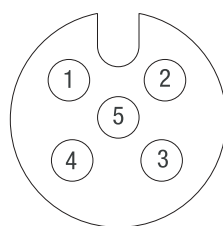
**1732D-IB8M8**



Input Pico-Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 3 Return
- Pin 4 Input

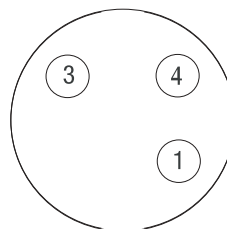
**1732D-OB8EM12**



Output Micro-Connector  
(view into connector)

- Pin 1 Not Used
- Pin 2 Output B
- Pin 3 Return
- Pin 4 Output A
- Pin 5 Not Used

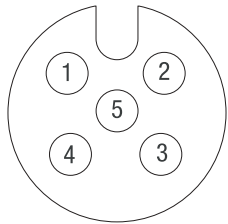
**1732D-OB8EM8**



Output Pico-Connector  
(view into connector)

- Pin 1 Not Used
- Pin 3 Return
- Pin 4 Output

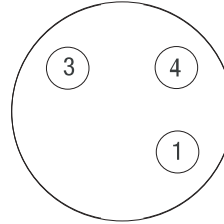
**1732P-8CFGM12**



Self-configuring Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 2 Input or Output B
- Pin 3 Return
- Pin 4 Input or Output A
- Pin 5 Not Used

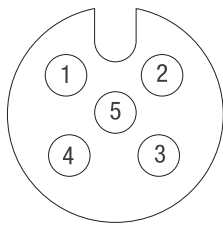
**1732P-8CFGM8**



Self-configuring Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 3 Return
- Pin 4 Input or Output

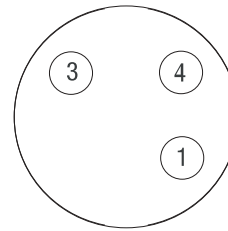
**1732P-IB8M12**



Input Micro-Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 2 Input B
- Pin 3 Return
- Pin 4 Input A
- Pin 5 Not used

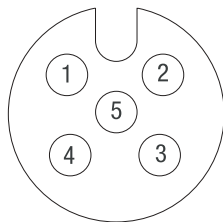
**1732P-IB8M8**



Input Pico-Connector  
(view into connector)

- Pin 1 Sensor Source Voltage
- Pin 3 Return
- Pin 4 Input

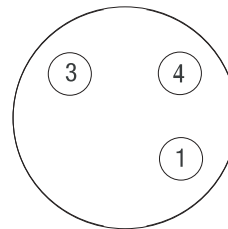
**1732P-OB8EM12**



Output Micro-Connector  
(view into connector)

- Pin 1 Not Used
- Pin 2 Output B
- Pin 3 Return
- Pin 4 Output A
- Pin 5 Not Used

**1732P-OB8EM8**



Output Pico-Connector  
(view into connector)

- Pin 1 Not Used
- Pin 3 Return
- Pin 4 Output



## 1734 POINT I/O Modules

### 1734-232ASC

0	1
Tx	Rx
2	3
NC	NC
4	5
NC	NC
6	7
NC	SG

Tx = Transmit  
 NC = No Connection  
 Rx = Receive  
 SG = Signal Ground

### 1734-485ASC

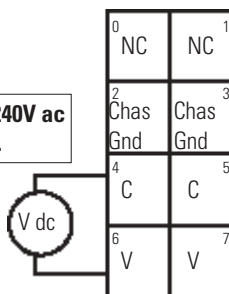
0	1
S+	NC
2	3
S-	NC
4	5
NC	NC
6	7
CG	SG

Tx, S+ = Transmit  
 NC = No Connection  
 CG = Chassis Ground  
 Rx, S- = Receive  
 SG = Signal Ground

### 1734-ADN, -ADNX, -ACNR, -AENT, -APB

12/24V dc  
 Power

**Do not connect 120/240V ac  
 power to this supply.**



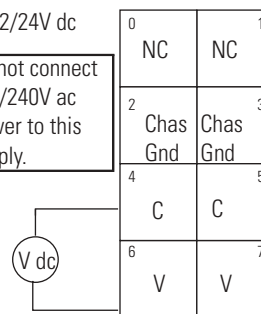
This dc supply will be  
 connected to the  
 internal power bus.

NC = No Connection  
 C = Common  
 Chas Gnd = Chassis Ground  
 V = Supply

### 1734-EP24DC

12/24V dc

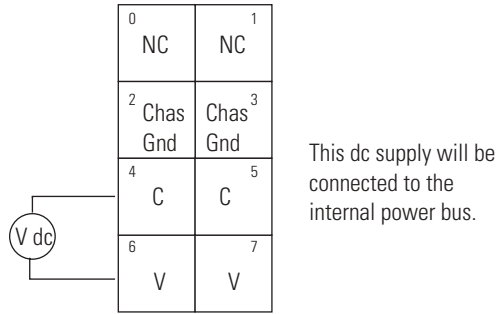
**Do not connect  
 120/240V ac  
 power to this  
 supply.**



This dc supply will be  
 connected to the  
 internal power bus.

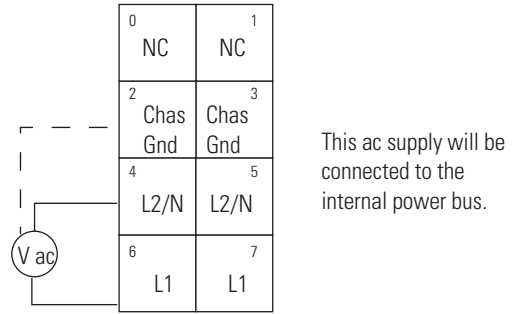
V = 12/24V dc, C = Common  
 CHAS GND = Chassis ground

**1734-FPD (12/24V dc)**



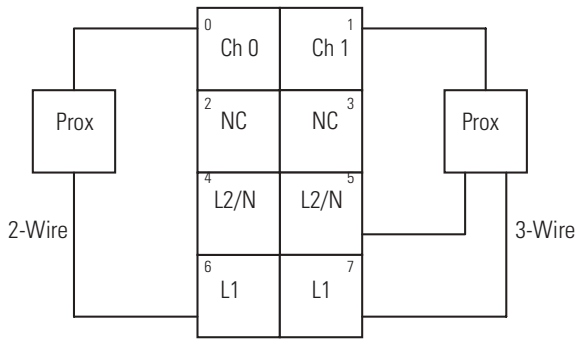
NC = No Connection Chas Gnd = Chassis Ground  
C = Common V = 12/24V dc

**1734-FPD (120/240V ac)**



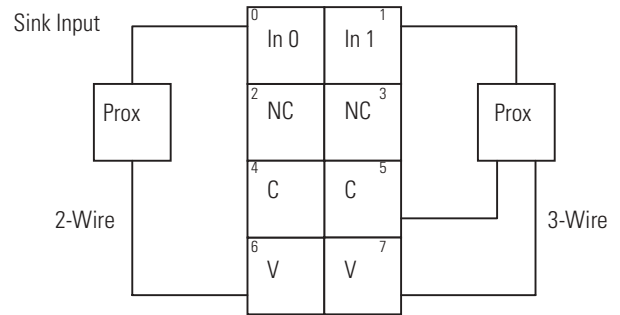
NC = No Connection Chas Gnd = Chassis Ground  
L1 = 120/240V ac L2/N = ac Neutral

**1734-IA2**



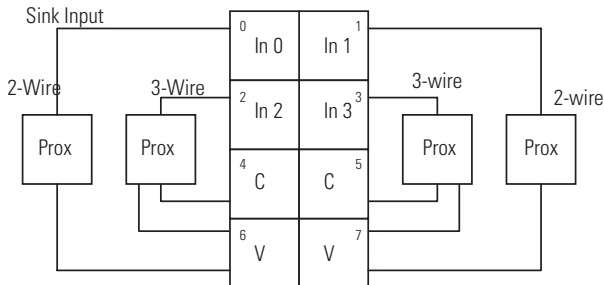
Ch 0 = Channel 0 Ch 1 = Channel 1  
NC = No Connection L2/N = 120V ac Neutral  
L1 = 120V ac

**1734-IB2**



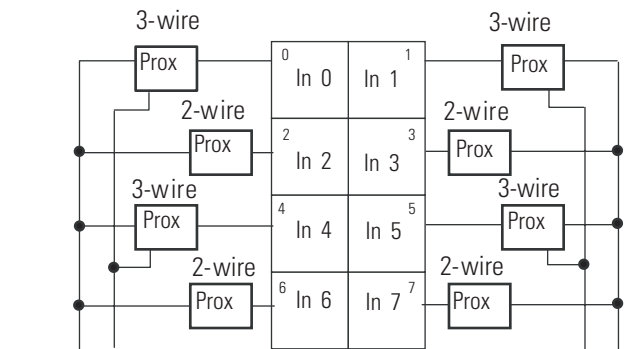
V = 12/24V dc, C = Common  
12/24V dc is supplied through the internal power bus

**1734-IB4**



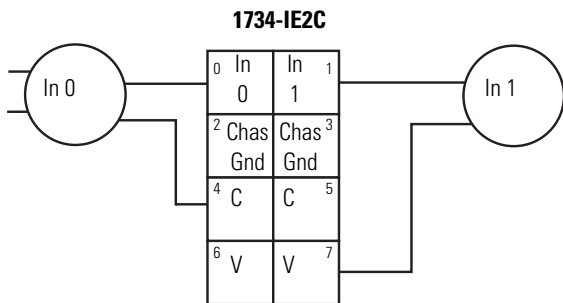
V = 12/24V dc, C = Common  
12/24V dc is supplied through the internal power bus

**1734-IB8**

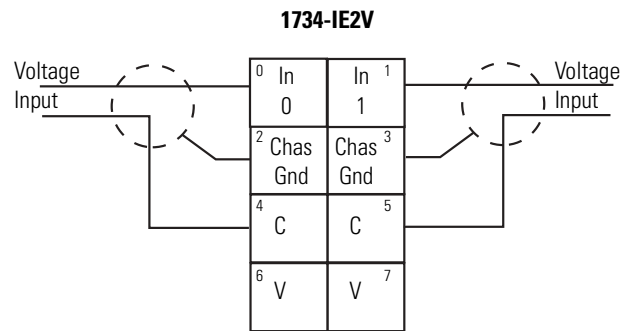


V = 12/24V dc  
C = Common

Daisy chain common and power connections from 1734 Adapter, 1734-FPD, 1734-EP24DC or from user supplied external auxiliary terminal block.



V = 12/24V dc, C = Common  
12/24V dc is supplied from the internal power bus



V = 12/24V dc, C = Common  
12/24V dc is supplied from the internal power bus

**1734-IJ**



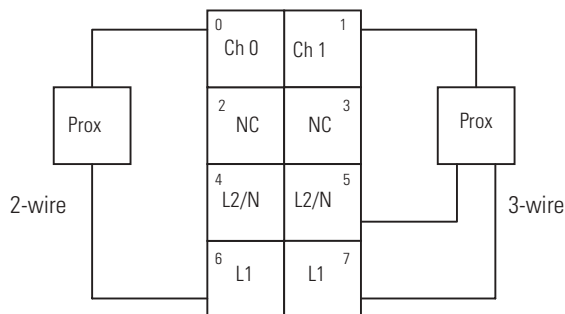
A, B, Z, Aret, Bret, and Zret = inputs  
Chas Gnd = Chassis Ground

**1734-IK**



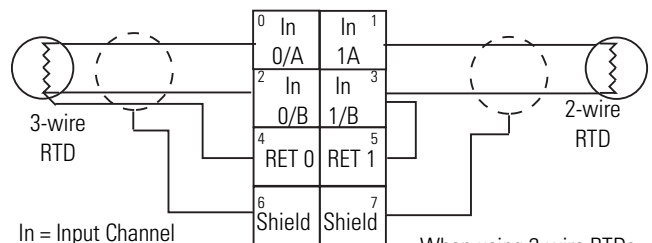
A, B, Z, Aret, Bret, and Zret = inputs  
Chas Gnd = Chassis Ground

**1734-IM2**



Ch 0 = Channel 0 input    Ch 1 = channel 1 input  
NC = No connection    L2/N = 220V ac Neutral  
L1 = 220V ac

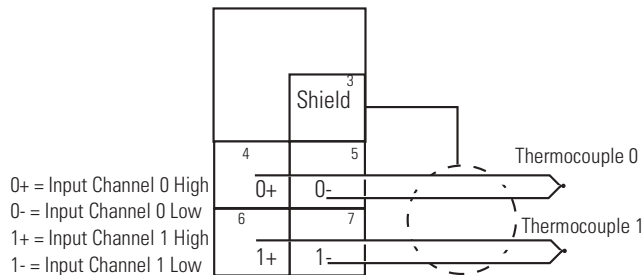
**1734-IR2**



In = Input Channel  
RET = Sensor Return  
Shield = Sensor Cable Shield

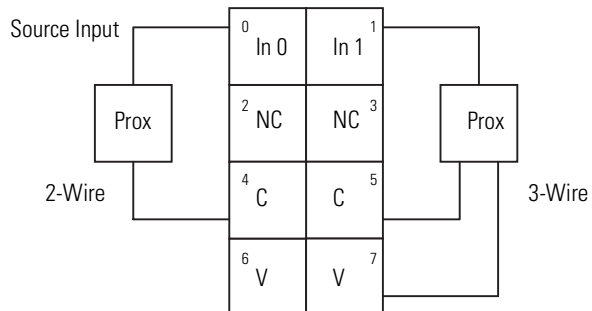
When using 2-wire RTDs,  
jumper In/B to RET.

**1734-IT2I**



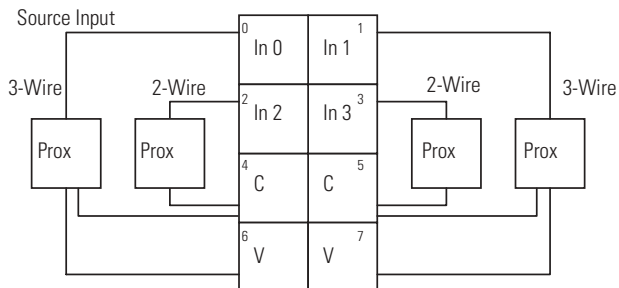
Use the 1734-TBCJC wiring base assembly for cold junction compensation.

**1734-IV2**



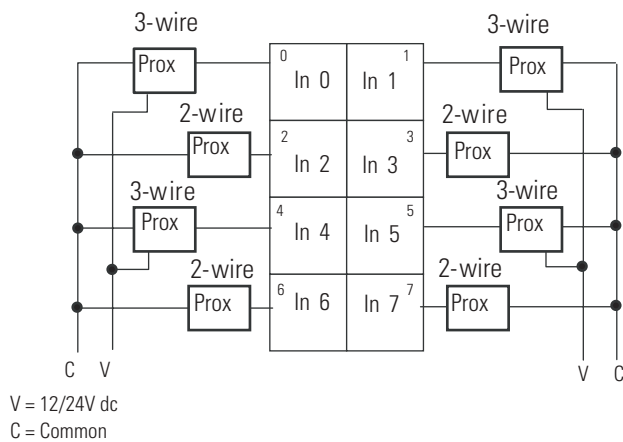
V = 12/24V dc, C = Common  
 12/24V dc is supplied through the internal power bus

**1734-IV4**



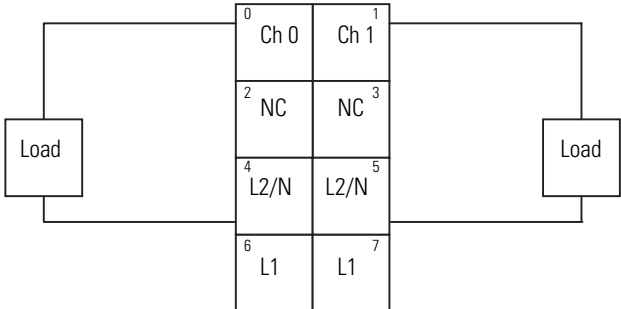
V = 12/24V dc, C = Common  
 12/24V dc is supplied through the internal power bus

**1734-IV8**



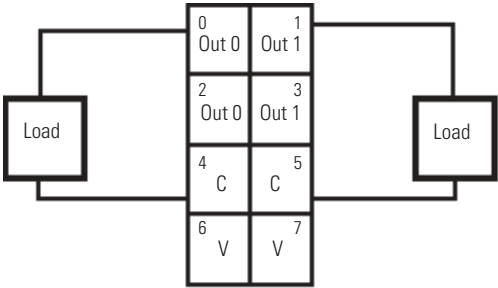
Daisy chain common and power connections from 1734 Adapter, 1734-FPD, 1734-EP24DC or from user supplied external auxiliary terminal block.

**1734-0A2**



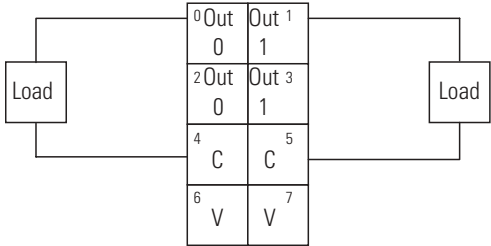
Ch 0 = Channel 0    Ch 1 = Channel 1  
 NC = No Connection    L2/N = 120/220V ac Return  
 L1 = 120/220V ac Supply  
 Field power is supplied from the internal power bus.

**1734-0B2**



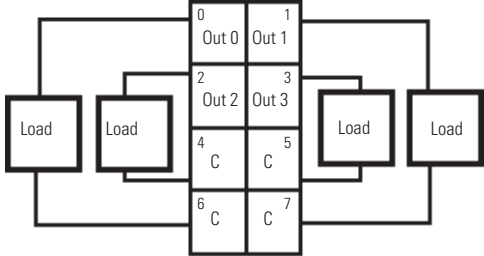
V = 12/24V dc, C = Common  
 Field power is supplied from internal power bus

**1734-0B2E, -0B2EP**



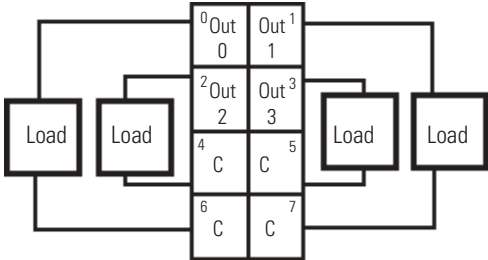
V = 12/24V dc, C = Common  
 Field power is supplied from the internal power bus  
 Module power is supplied from the internal power bus

**1734-0B4**



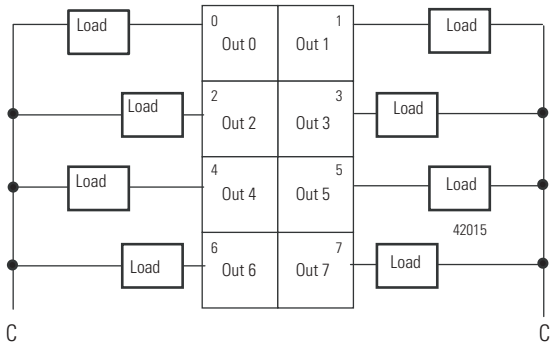
V = 12/24V dc, C = Common  
 Field power is supplied from internal power bus

**1734-0B4E**



V = 12/24V dc, C = Common  
 Field power is supplied from the internal power bus  
 Module power is supplied from the internal power bus

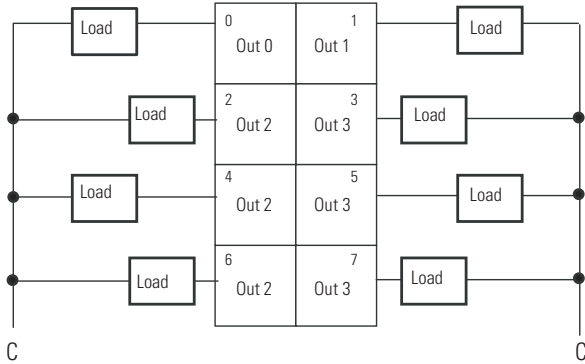
**1734-0B8**



Common must be daisy chained from a 1734 adapter, 1734-FPD, 1734-EP24DC, or from a user-supplied auxiliary terminal block.

The 24V dc power to the module is supplied by the internal power bus and comes from the same 1734 adapter, 1734-FPD, or 1734-EP24DC as common.

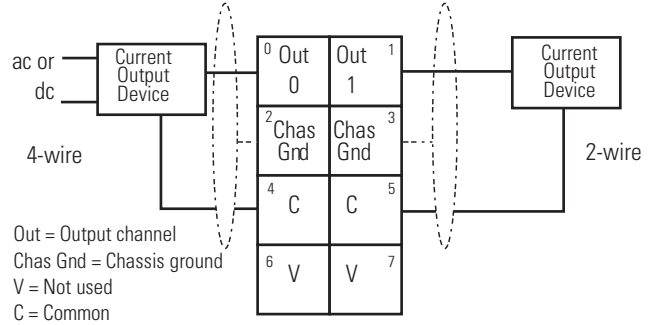
**1734-OB8E**



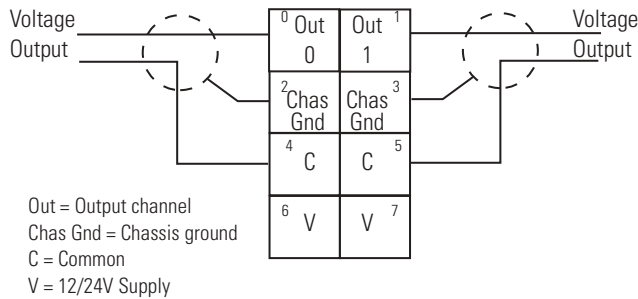
Common must be daisy chained from a 1734 adapter, 1734-FPD, 1734-EP24DC, or from a user-supplied auxiliary terminal block.

The 24V dc power to the module is supplied by the internal power bus and comes from the same 1734 adapter, 1734-FPD, or 1734-EP24DC as common.

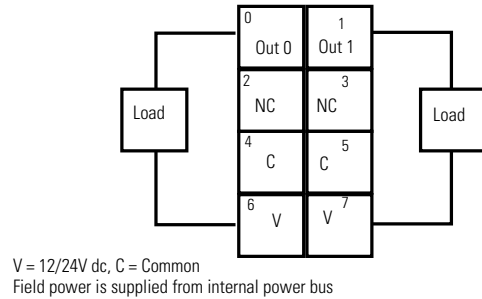
**1734-OE2C**



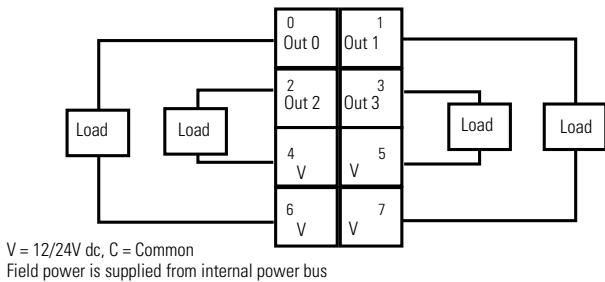
**1734-OE2V**



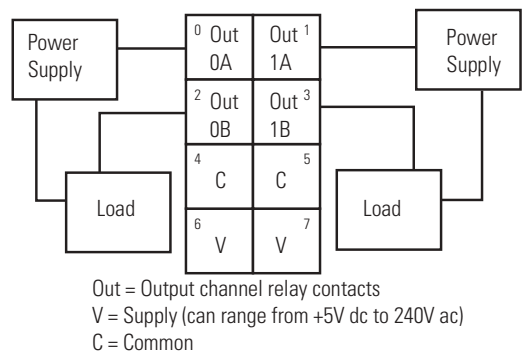
**1734-0V2E**



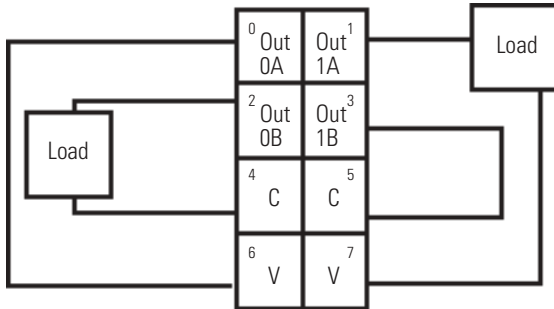
**1734-0V4E**



**1734-0W2 Load Powered by External Power Bus**

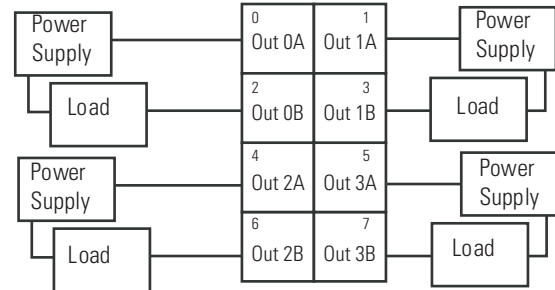


**1734-OW2 Load Powered by Internal Power Bus**



Out = Output channel relay contacts  
 V = Supply (can range from +5V dc to 240V ac)  
 C = Common

**1734-OW4 Load Powered by External Power Bus**

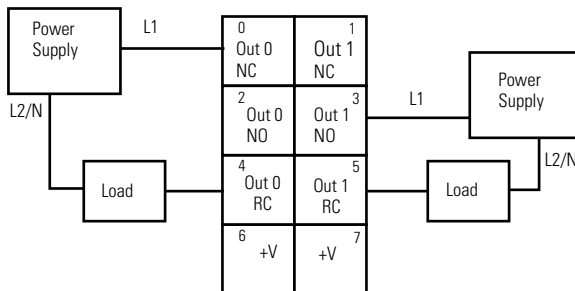


Out = Output channel relay contacts

Supply voltage can range from +5V dc to 240V ac, depending on relay load.  
 12/24V dc power for the module is provided by the external power supply.

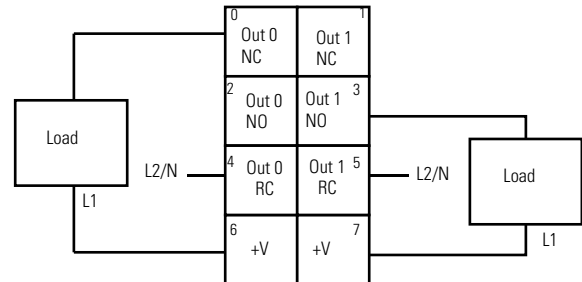
The power supply voltage may be daisy chained from a 1734 adapter, 1734-FPD or 1734-EP24DC communication interface. Each channel is individually isolated and may have a unique supply and/or voltage as necessary.

**1734-0X2 Load Powered by External Power Bus**



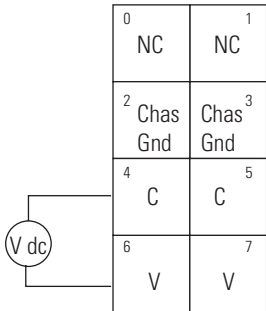
Out = Output channel relay contacts  
 Power Supply = can range from +5V dc to 240V ac  
 RC = Relay Common

**1734-0X2 Load Powered by Internal Power Bus**



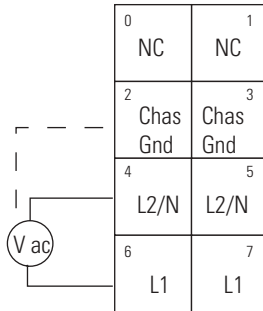
NC = Normally closed  
 NO = Normally open  
 RC = Relay Common  
 +V = Positive Supply

**1734-PDN (12/24V dc)**



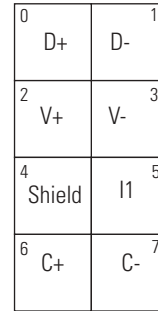
This supply will be connected to the internal power bus.

**1734-PDN 120/240V ac**



This supply will be connected to the internal power bus.

**1734-SSI**

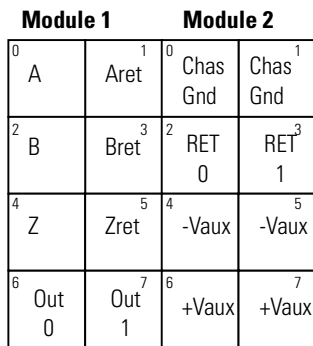


D = Data  
C = Clock  
I1 = Digital Sourcing Input 1  
V = SSI Sensor

NC = No Connection  
C = Common  
Chas Gnd = Chassis Ground  
V = 12/24V dc

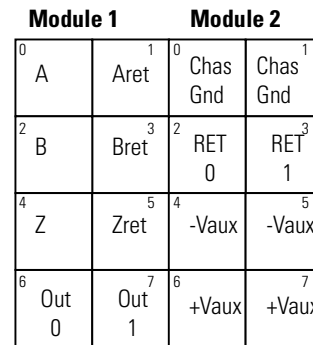
NC = No Connection  
L1 = 120/240V ac  
Chas Gnd = Chassis Ground  
L2/N = ac Neutral

**1734-VHSC24**



A, B, Z, Aret, Bret, and Zret = inputs  
Chas Gnd = Chassis Ground  
-Vaux = Auxiliary Supply  
+Vaux = Auxiliary Supply

**1734-VHSC5**

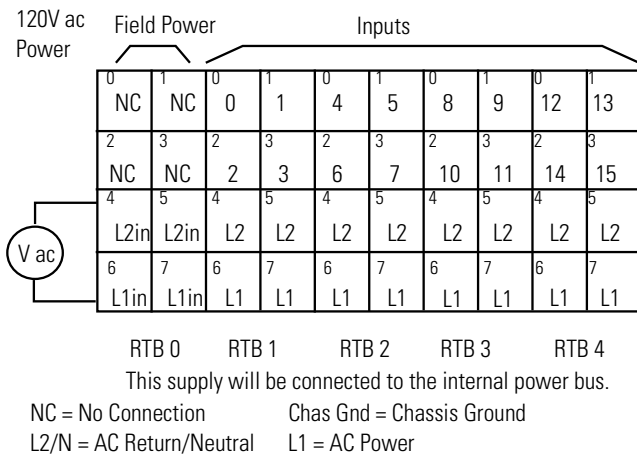


A, B, Z, Aret, Bret, and Zret = inputs  
Chas Gnd = Chassis Ground  
-Vaux = Auxiliary Supply  
+Vaux = Auxiliary Supply

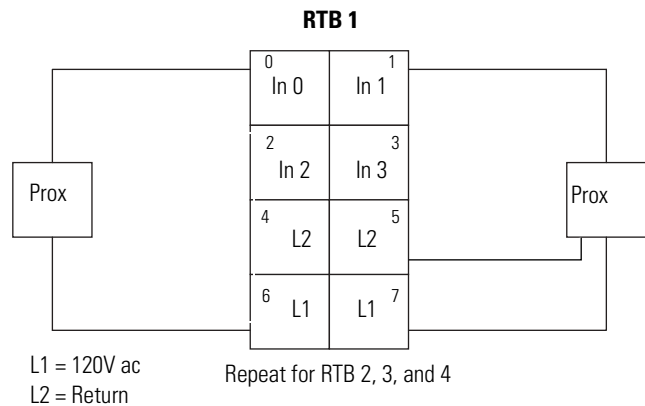


## 1734D POINTBlock I/O Modules

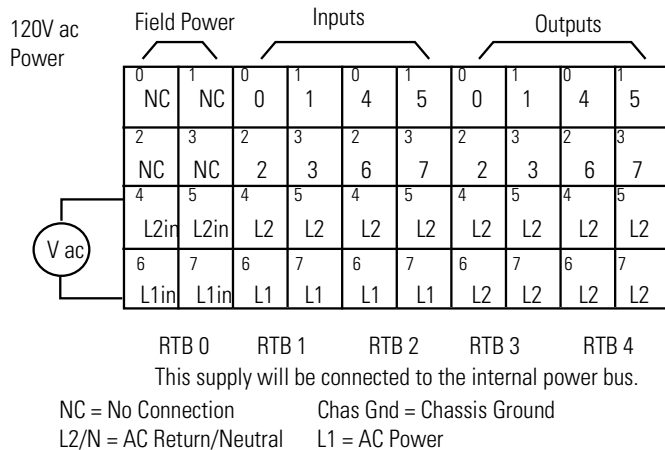
**1734D-IA16, -IA16S**



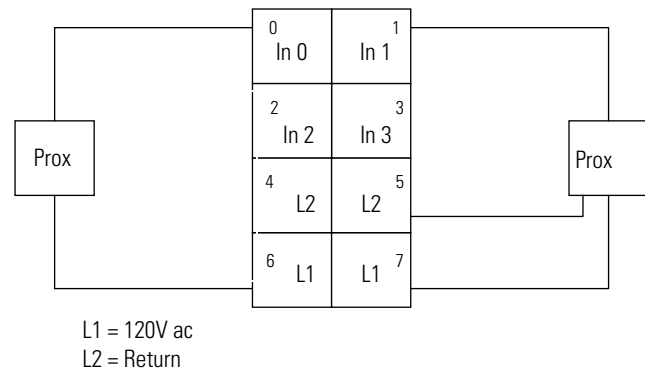
**1734D-IA16, -IA16S Input**



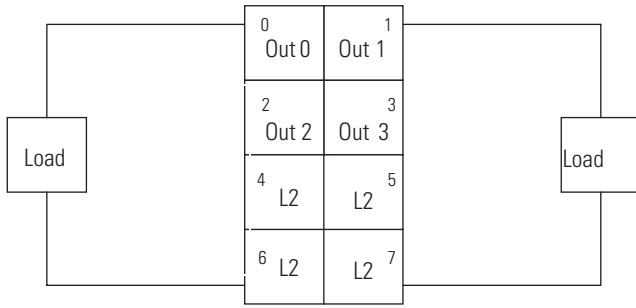
**1734D-IA8XOA8, -IA8XOA8S**



**1734D-IA8XOA8, -IA8XOA8S Input**

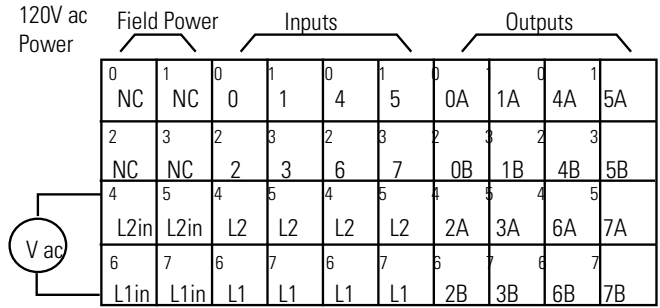


**1734D-IA8XOA8, -IA8XOA8S Output**



L1 = 120V ac  
L2 = Return

**1734D-IA8XOW8, -IA8XOW8S**



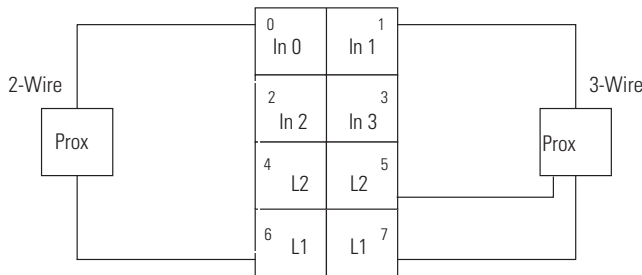
RTB 0 RTB 1 RTB 2 RTB 3 RTB 4

This supply will be connected to the internal power bus.

NC = No connection

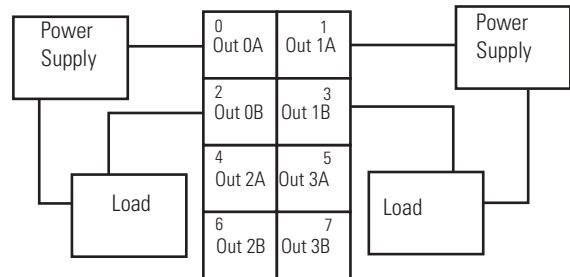
L2/N = AC Return/Neutral L1 = AC Power

**1734D-IA8XOW8, -IA8XOW8S Input**



L1 = 120V ac  
L2 = Return

**1734D-IA8XOW8, -IA8XOW8S Output (Load Powered by External Power)**



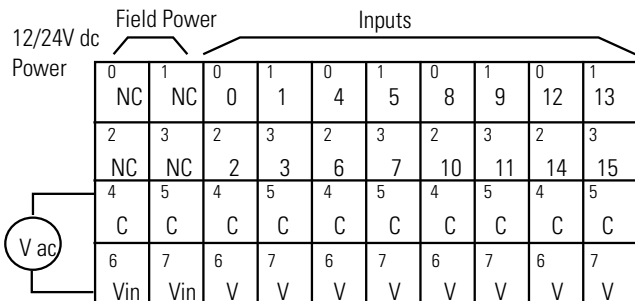
Out = Output channel relay contacts

L1 = 120V ac

L2 = Return

NOTE: This module cannot be powered by an internal power load.

**1734D-IB16, -IB16S**



RTB 0 RTB 1 RTB 2 RTB 3 RTB 4

This supply will be connected to the internal power bus.

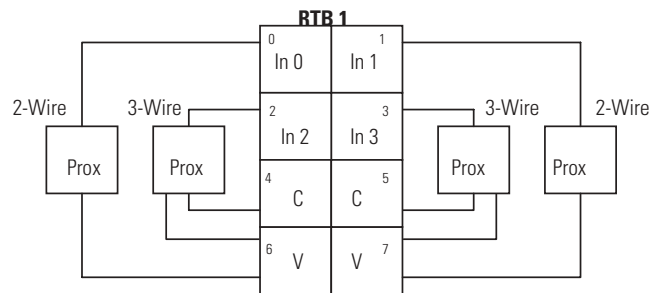
NC = No Connection

Chas Gnd = Chassis Ground

C = Common

V = Supply

**1734D-IB16, -IB16S Sink Input**

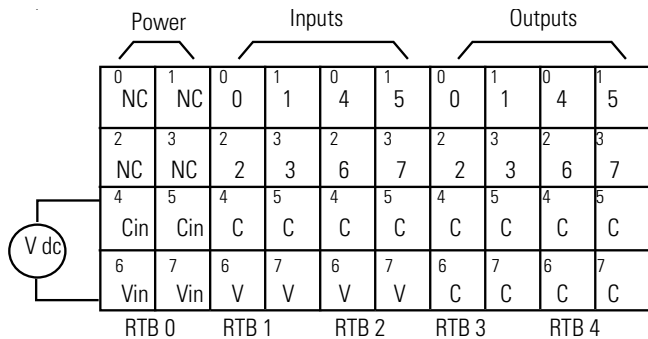


V = 12/24V dc

C = Common

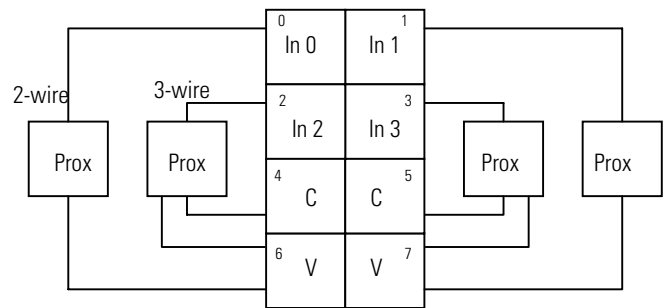
Repeat for RTB 2, 3, and 4

**1734D-IB8XOB8E, -IB8XOB8ES**



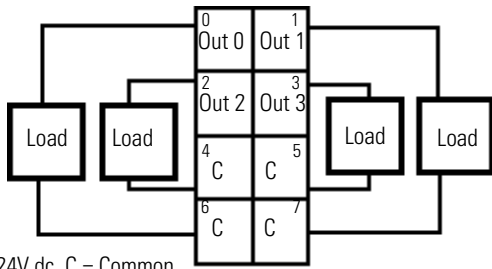
This supply will be connected to the internal power bus.  
 NC = No Connection      Chas Gnd = Chassis Ground  
 C = Common                V = Supply

**1734D-IB8XOB8E, -IB8XOB8ES Sink Input**



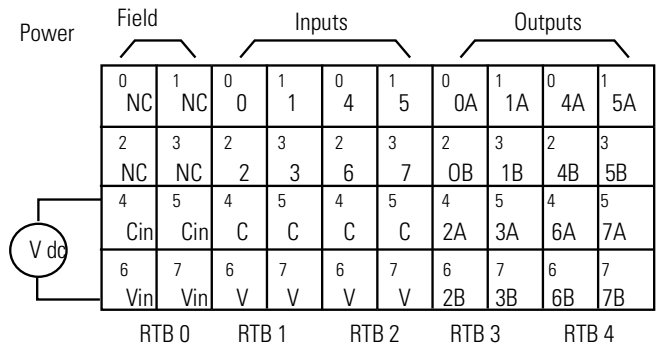
V = 12/24V dc  
 C = Common

**1734D-IB8XOB8E, -IB8XOB8ES Output**



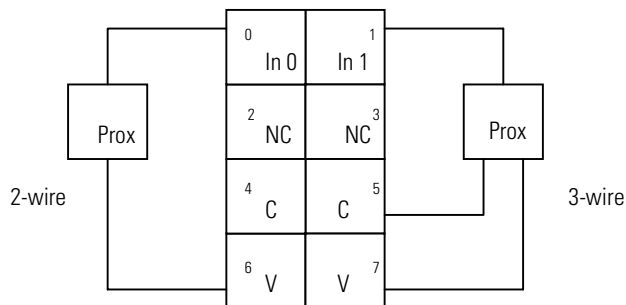
V = 12/24V dc, C = Common  
 Field power is supplied from internal power bus

**1734D-IB8XOW8, -IB8XOW8S**



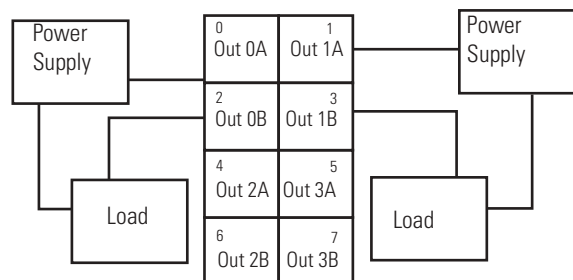
This supply will be connected to the internal power bus.  
 NC = No Connection      Chas Gnd = Chassis Ground  
 C = Common                V = Supply

**1734D-IB8XOW8, -IB8XOW8S Sink Input**



V = 12/24V dc  
 C = Common

**1734D-IB8XOW8, -IB8XOW8S Output (Load Powered by External Power)**



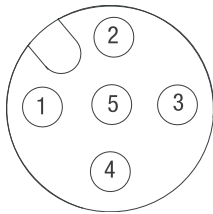
Out = Output channel relay contacts  
 Power Supply = can range from +5V dc to 240V ac  
 C = Common

NOTE: This module cannot be powered by an internal power load.

**Notes:**

## 1738 ArmorPoint

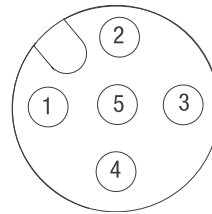
**1738-232ASCM12**



(view into connector)

Pin 1 No Connect  
 Pin 2 Tx +  
 Pin 3 Rx +  
 Pin 4 Common  
 Pin 5 No Connect

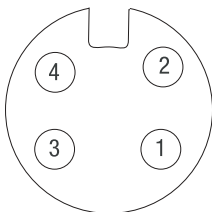
**1738-485ASCM12**



(view into connector)

Pin 1 Tx -  
 Pin 2 Tx +  
 Pin 3 Rx +  
 Pin 4 Rx -  
 Pin 5 No Connect

**1738-ACNR**

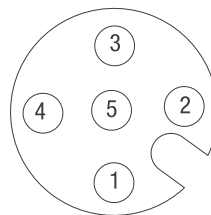


Male In Connector  
 (view into connector)

Pin 1 - User Power +  
 Pin 2 - Adapter Power +  
 Pin 3 - Adapter Power -  
 Pin 4 - User Power -

**1738-ADN12**

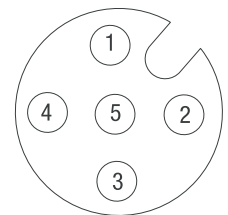
Male In Connector



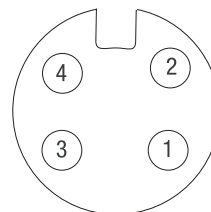
(view into connector)

Pin 1 Drain  
 Pin 2 +V  
 Pin 3 -V  
 Pin 4 CAN\_High  
 Pin 5 CAN\_Low

Female Out Connector



DeviceNet Auxiliary Power

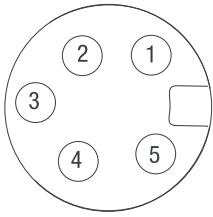


Male In Connector

(view into connector)

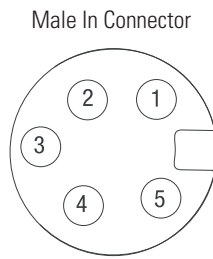
Pin 1 User Power +  
 Pin 2 Adapter Power +  
 Pin 3 Adapter Power -  
 Pin 4 User Power -

**1738-ADN18**



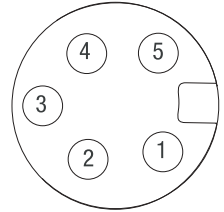
Male In Connector  
(view into connector)  
Pin 1 Drain  
Pin 2 +V  
Pin 3 -V  
Pin 4 CAN\_High  
Pin 5 CAN\_Low

**1738-ADN18P**

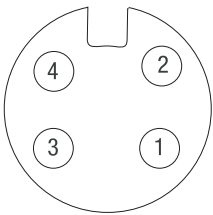


(view into connector)  
Pin 1 Drain  
Pin 2 +V  
Pin 3 -V  
Pin 4 CAN\_High  
Pin 5 CAN\_Low

Female Out Connector

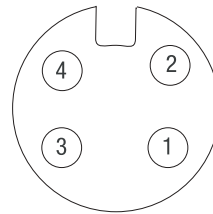


DeviceNet Auxiliary Power



Male In Connector  
(view into connector)  
Pin 1 User Power +  
Pin 2 Adapter Power +  
Pin 3 Adapter Power -  
Pin 4 User Power -

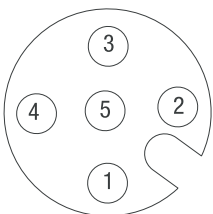
DeviceNet Auxiliary Power



Male In Connector  
(view into connector)  
Pin 1 User Power +  
Pin 2 Adapter Power +  
Pin 3 Adapter Power -  
Pin 4 User Power -

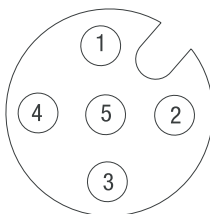
**1738-ADNX**

Male In Connector



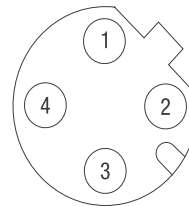
(view into connector)  
Pin 1 Drain  
Pin 2 +V  
Pin 3 -V  
Pin 4 CAN\_High  
Pin 5 CAN\_Low

Female Out Connector  
(Subnet out)



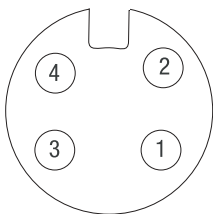
**1738-AENT**

Network Connector



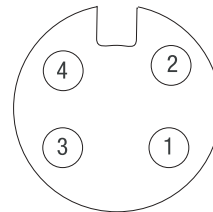
Female In Connector  
(view into connector)  
Pin 1 Tx +  
Pin 2 Rx +  
Pin 3 Tx -  
Pin 4 Rx -

DeviceNet Auxiliary Power



Male In Connector  
(view into connector)  
Pin 1 User Power +  
Pin 2 Adapter/Subnet +  
Pin 3 Adapter/Subnet -  
Pin 4 User Power -

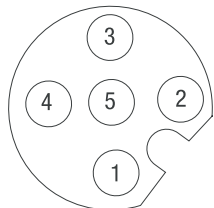
Auxiliary Power



Male In Connector  
(view into connector)  
Pin 1 User Power +  
Pin 2 Adapter Power +  
Pin 3 Adapter Power -  
Pin 4 User Power -

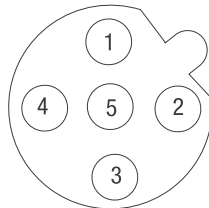
**1738-APB**

Male In Connector



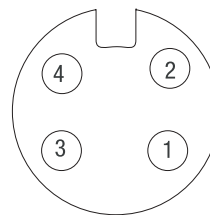
- (view into connector)  
 Pin 1 +5VBUS  
 Pin 2 A-Line  
 Pin 3 GNDBUS  
 Pin 4 B-Line!  
 Pin 5 Shield

Female In Connector

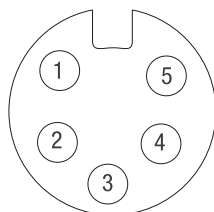


**1738-EP24DC**

- Male In Connector  
 (view into connector)  
 Pin 1 User Power +  
 Pin 2 Adapter +  
 Pin 3 Adapter -  
 Pin 4 User Power -



Male Auxiliary



- Male In connector  
 ((view into connector)  
 Pin 1 User Power -  
 Pin 2 Adapter Power -  
 Pin 3 Protective GND  
 Pin 4 Adapter Power +  
 Pin 5 User Power +

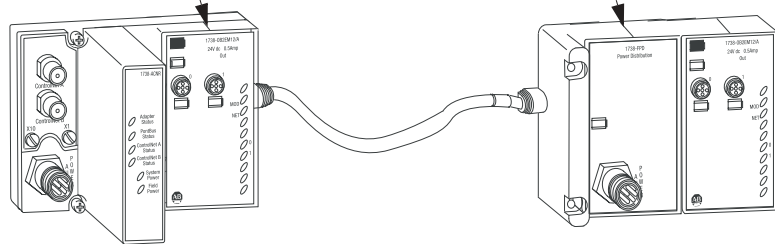
**IMPORTANT**

Profibus Adapter Network connections have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**1738-EXT1, -EXT3**

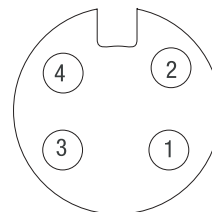
Module will bridge the extension unit and the base

Module will bridge the extension unit and the base

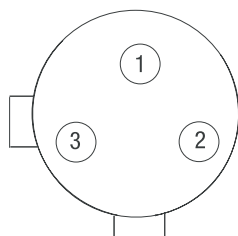


**1738-FPD**

- Male In Connector  
 (view into connector)  
 Pin 1 User Power +  
 Pin 2 No Connect  
 Pin 3 No Connect  
 Pin 4 User Power -

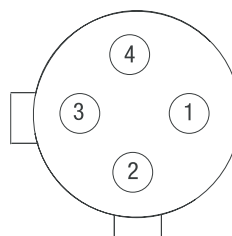


**1738-IA2M12AC3**



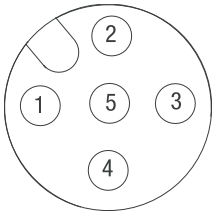
- (view into connector)  
 Pin 1 Chassis  
 Pin 2 L1  
 Pin 3 Input 0 (M12-A)  
 Input 1 (M12-B)

**1738-IA2M12AC4**



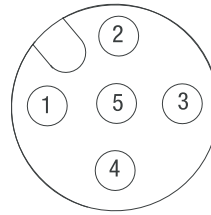
- (view into connector)  
 Pin 1 L1  
 Pin 2 L2/N  
 Pin 3 Input 0 (M12-A)  
 Input 1 (M12-B)  
 Pin 4 Chassis

**1738-IB2M12**



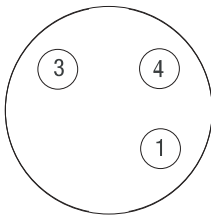
(view into connector)  
 Pin 1 24V dc  
 Pin 2 No Connect  
 Pin 3 Common  
 Pin 4 Input 0 (M12-A)  
         Input 1 (M12-B)  
 Pin 5 No Connect

**1738-IB4M12**



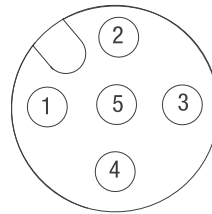
(view into connector)  
 Pin 1 24V dc  
 Pin 2 No Connect  
 Pin 3 Common  
 Pin 4 Input 0 (M12-A)  
         Input 1 (M12-B)  
         Input 2 (M12-C)  
         Input 3 (M12-D)  
 Pin 5 No Connect

**1738-IB4M8**



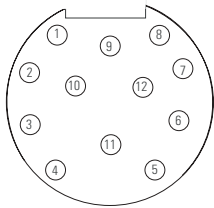
(view into connector)  
 Pin 1 24V dc  
 Pin 3 Common  
 Pin 4 Input 0 (M8-A)  
         Input 1 (M8-B)  
         Input 2 (M8-C)  
         Input 3 (M8-D)

**1738-IB8M12**



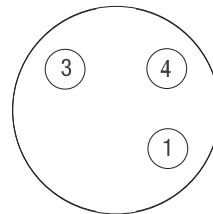
(view into connector)  
 Pin 1 24V dc  
 Pin 2 Input 1 (M12-A)  
         Input 3 (M12-B)  
         Input 5 (M12-C)  
         Input 7 (M12-D)  
 Pin 3 Common  
 Pin 4 Input 0 (M12-A)  
         Input 2 (M12-B)  
         Input 4 (M12-C)  
         Input 6 (M12-D)  
 Pin 5 No Connect

**1738-IB8M23**



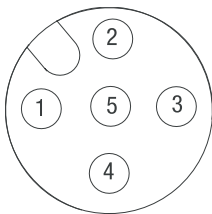
(view into connector)  
 Pin 1 Input 0                  Pin 7 Input 6  
 Pin 2 Input 1                  Pin 8 Input 7  
 Pin 3 Input 2                  Pin 9 Return (Com)  
 Pin 4 Input 3                  Pin 10 Return (Com)  
 Pin 5 Input 4                  Pin 11 24V dc  
 Pin 6 Input 5                  Pin 12 Chassis

**1738-IB8M8**



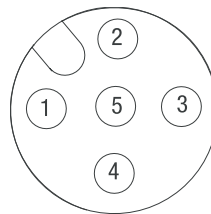
(view into connector)  
 Pin 1 24V dc                  Pin 4 Input 0 (M8-A)  
 Pin 3 Common                  Input 1 (M8-B)  
   Input 2 (M8-C)  
   Input 3 (M8-D)  
   Input 4 (M8-E)  
   Input 5 (M8-F)  
   Input 6 (M8-G)  
   Input 7 (M8-H)

**1738-IE2CM12**



(view into connector)  
 Pin 1 24V dc  
 Pin 2 Input 0 (M12-A)  
         Input 1 (M12-B)  
 Pin 3 Common  
 Pin 4 Common  
 Pin 5 No Connect

**1738-IE2VM12**



(view into connector)  
 Pin 1 24V dc  
 Pin 2 Input 0 (M12-A)  
         Input 1 (M12-B)  
 Pin 3 Common  
 Pin 4 Common  
 Pin 5 No Connect

**IMPORTANT**

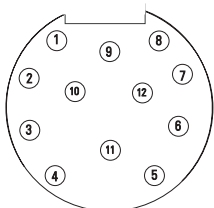
Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**IMPORTANT**

Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.



**1738-IJM23**



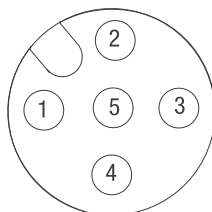
(view into connector)

- Pin 1 +A
- Pin 2 -A
- Pin 3 +B
- Pin 4 -B
- Pin 5 +Z
- Pin 6 -Z
- Pin 7 Chassis
- Pin 8 Chassis
- Pin 9 Return (Com)
- Pin 10 Return (Com)
- Pin 11 5V dc
- Pin 12 Chassis

**IMPORTANT**

Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**1738-IR2M12**



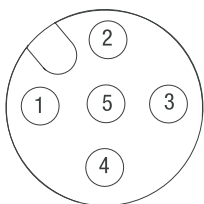
(view into connector)

- Pin 1 No Connect
- Pin 2 Input 0A (M12-A)  
Input 1A (M12-B)
- Pin 3 Input 0C (M12-A)  
Input 1C (M12-B)
- Pin 4 Input 0B (M12-A)  
Input 1B (M12-B)
- Pin 5 No Connect

**IMPORTANT**

Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**1738-IT2IM12**



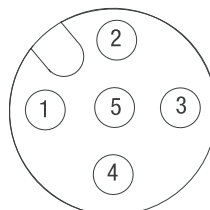
(view into connector)

- Pin 1 CJC +
- Pin 2 TC 0 + (M12-A)  
TC 1 + (M12-B)
- Pin 3 CJC -
- Pin 4 TC 0 - (M12-A)  
TC 1 - (M12-B)
- Pin 5 No Connect

**IMPORTANT**

Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

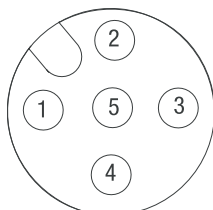
**1738-IV4M12**



(view into connector)

- Pin 1 24V dc
- Pin 2 No Connect
- Pin 3 Common
- Pin 4 Input 0 (M12-A)  
Input 1 (M12-B)  
Input 2 (M12-C)  
Input 3 (M12-D)
- Pin 5 No Connect

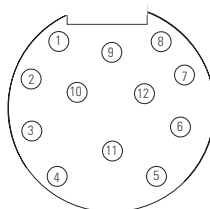
**1738-IV8M12**



(view into connector)

- Pin 1 24V dc
- Pin 2 Input 1 (M12-A)  
Input 3 (M12-B)  
Input 5 (M12-C)  
Input 7 (M12-D)
- Pin 3 Common
- Pin 4 Input 0 (M12-A)  
Input 2 (M12-B)  
Input 4 (M12-C)  
Input 6 (M12-D)
- Pin 5 No Connect

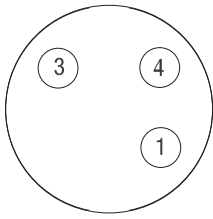
**1738-IV8M23**



(view into connector)

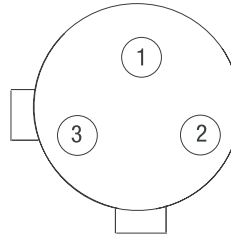
- Pin 1 Input 0
- Pin 2 Input 1
- Pin 3 Input 2
- Pin 4 Input 3
- Pin 5 Input 4
- Pin 6 Input 5
- Pin 7 Input 6
- Pin 8 Input 7
- Pin 9 Return (Com)
- Pin 10 Return (Com)
- Pin 11 24V dc
- Pin 12 Chassis

**1738-IV8M8**



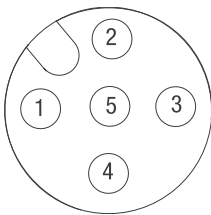
(view into connector)  
 Pin 1 24V dc  
 Pin 3 Common  
 Pin 4 Input 0 (M8-A)  
 Input 1 (M8-B)  
 Input 2 (M8-C)  
 Input 3 (M8-D)  
 Input 4 (M8-E)  
 Input 5 (M8-F)  
 Input 6 (M8-G)  
 Input 7 (M8-H)

**1738-OA2M12AC3**



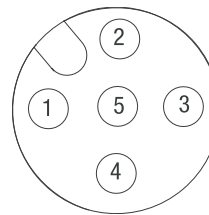
(view into connector)  
 Pin 1 Chassis  
 Pin 2 L2/N  
 Pin 3 Output 0 (M12-A)  
 Output 1 (M12-B)

**1738-OB2EM12**



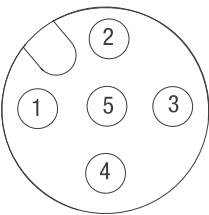
(view into connector)  
 Pin 1 24V dc  
 Pin 2 No Connect  
 Pin 3 Common  
 Pin 4 Output 0 (M12-A)  
 Output 1 (M12-B)  
 Pin 5 No Connect

**1738-OB2EPM12**



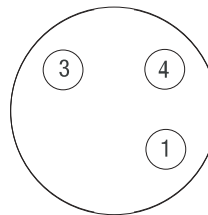
(view into connector)  
 Pin 1 24V dc  
 Pin 2 No Connect  
 Pin 3 Common  
 Pin 4 Output 0 (M12-A)  
 Output 1 (M12-B)  
 Pin 5 No Connect

**1738-OB4EM12**



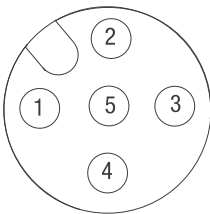
(view into connector)  
 Pin 1 24V dc  
 Pin 2 No Connect  
 Pin 3 Common  
 Pin 4 Output 0 (M12-A)  
 Output 1 (M12-B)  
 Output 2 (M12-C)  
 Output 3 (M12-D)  
 Pin 5 No Connect

**1738-OB4EM8**



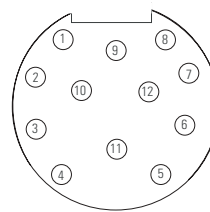
(view into connector)  
 Pin 1 24V dc  
 Pin 3 Common  
 Pin 4 Output 0 (M8-A)  
 Output 1 (M8-B)  
 Output 2 (M8-C)  
 Output 3 (M8-D)

**1738-OB8EM12**



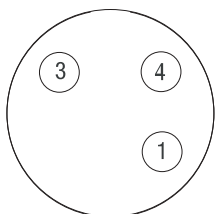
(view into connector)  
 Pin 1 24V dc  
 Pin 2 Output 1 (M12-A)  
 Output 3 (M12-B)  
 Output 5 (M12-C)  
 Output 7 (M12-D)  
 Pin 3 Common  
 Pin 4 Output 0 (M12-A)  
 Output 2 (M12-B)  
 Output 4 (M12-C)  
 Output 6 (M12-D)  
 Pin 5 No Connect

**1738-OB8EM23**



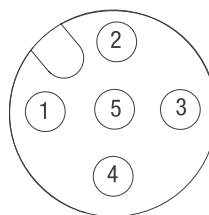
(view into connector)  
 Pin 1 Output 0  
 Pin 2 Output 1  
 Pin 3 Output 2  
 Pin 4 Output 3  
 Pin 5 Output 4  
 Pin 6 Output 5  
 Pin 7 Output 6  
 Pin 8 Output 7  
 Pin 9 Return (Com)  
 Pin 10 Return (Com)  
 Pin 11 24V dc  
 Pin 12 Chassis

**1738-OB8EM8**



- (view into connector)  
 Pin 1 24V dc  
 Pin 3 Common  
 Pin 4 Output 0 (M8-A)  
 Output 1 (M8-B)  
 Output 2 (M8-C)  
 Output 3 (M8-D)  
 Output 4 (M8-E)  
 Output 5 (M8-F)  
 Output 6 (M8-G)  
 Output 7 (M8-H)

**1738-OE2CM12**

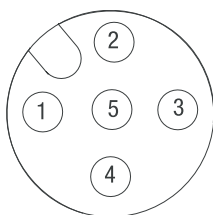


- (view into connector)  
 Pin 1 Output 0 (M12-A)  
 Output 1 (M12-B)  
 Pin 2 24V dc  
 Pin 3 Common  
 Pin 4 Common  
 Pin 5 No Connect

**IMPORTANT**

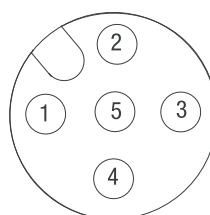
Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**1738-OE2VM12**



- (view into connector)  
 Pin 1 Output 0 (M12-A)  
 Output 1 (M12-B)  
 Pin 2 24V dc  
 Pin 3 Common  
 Pin 4 Common  
 Pin 5 No Connect

**1738-OV4EM12**

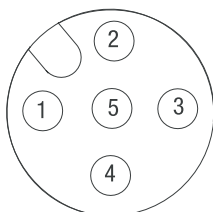


- (view into connector)  
 Pin 1 24V dc  
 Pin 2 No Connect  
 Pin 3 Common  
 Pin 4 Output 0 (M12-A)  
 Output 1 (M12-B)  
 Output 2 (M12-C)  
 Output 3 (M12-D)  
 Pin 5 No Connect

**IMPORTANT**

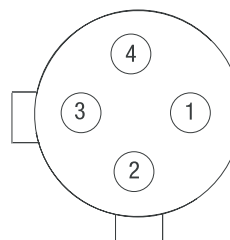
Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**1738-OW4M12**



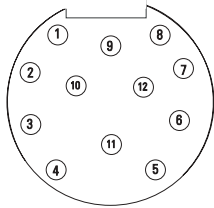
- (view into connector)  
 Pin 1 24V dc  
 Pin 2 Output 0B (M12-A)  
 Output 1B (M12-B)  
 Output 2B (M12-C)  
 Output 3B (M12-D)  
 Pin 3 Common  
 Pin 4 Output 0A (M12-A)  
 Output 1A (M12-B)  
 Output 2A (M12-C)  
 Output 3A (M12-D)  
 Pin 5 No Connect

**1738-OW4M12AC4**



- (view into connector)  
 Pin 1 L1  
 Pin 2 L2/N  
 Pin 3 Output 0A (M12-A)  
 Output 1A (M12-B)  
 Output 2A (M12-C)  
 Output 3A (M12-D)  
 Pin 4 Output 0B (M12-A)  
 Output 1B (M12-B)  
 Output 2B (M12-C)  
 Output 3B (M12-D)

**1738-SSIM23**



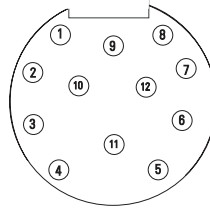
(view into connector)

- Pin 1 Data +
- Pin 2 Data -
- Pin 3 V +
- Pin 4 V -
- Pin 5 Shield
- Pin 6 Input 0
- Pin 7 Clock +
- Pin 8 Clock -
- Pin 9 Return (Com)
- Pin 10 Return (Com)
- Pin 11 24 V dc
- Pin 12 Chassis

**IMPORTANT**

Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

**1738-VHSC24M23**



(view into connector)

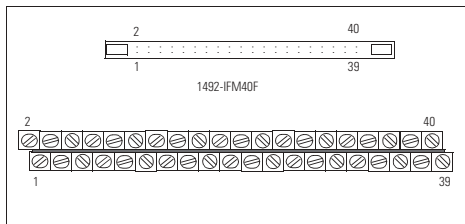
- Pin 1 +A
- Pin 2 -A
- Pin 3 +B
- Pin 4 -B
- Pin 5 +Z
- Pin 6 -Z
- Pin 7 Output 0
- Pin 8 Output 1
- Pin 9 Return (Com)
- Pin 10 Return (Com)
- Pin 11 24V dc
- Pin 12 Chassis

**IMPORTANT**

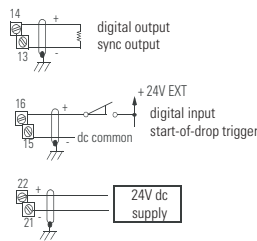
Analog and specialty modules have earth grounded metal rings. This should be considered when choosing shielded cables and grounding techniques.

## 1746 I/O Modules

### 1746-BLM

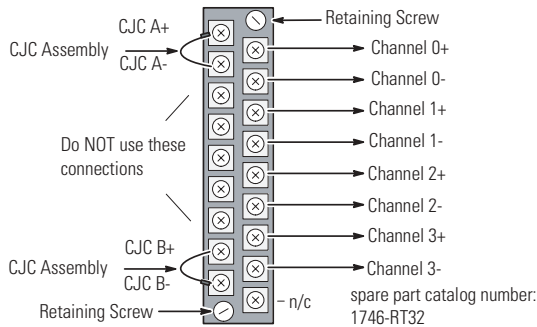


We recommend making connections to the 1746-BLM module with:  
 -- Interface module (1492-IFM40F)  
 -- Interface cable (1492-CABLE010H)



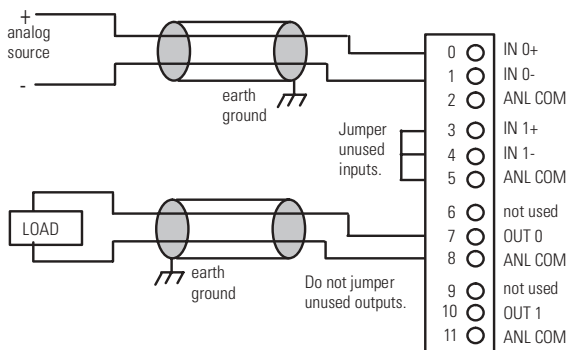
Description	Axis 1	Axis 2	Axis 3	Axis 4	System
Reserved					4, 3, 2, 1
Digital OUT-	17	13	9	5	
Digital OUT+ (+24EXT)	18	14	10	6	
Digital IN-	19	15	11	7	
Digital IN+	20	16	12	8	
-24V dc RET					21
+24V dc EXT					22
Analog OUT- (GND)	23	27	31	35	
Analog OUT+	24	28	32	36	
Analog IN-	25	29	33	37	
Analog IN+	26	30	34	38	
Excitation- (-10V)					39
Excitation+ (+10V)					40

### 1746-BTM

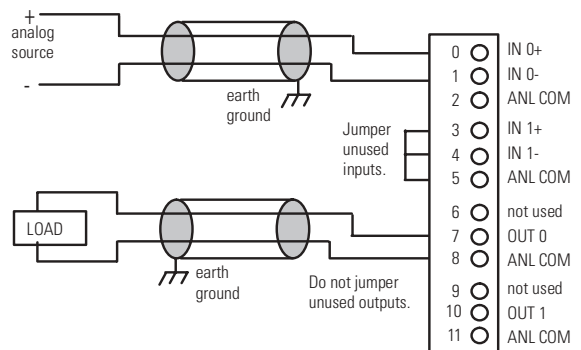


**ATTENTION** Do not remove or loosen the cold junction compensating thermistors located on the terminal block. Both thermistors are critical to ensure accurate thermocouple input readings at each channel. The module will not operate in the thermocouple mode if a thermistor is removed.

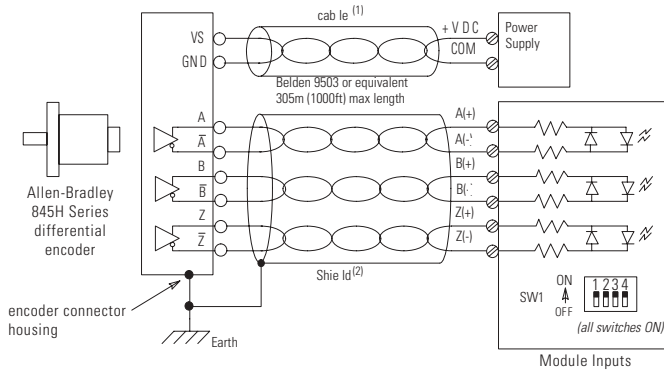
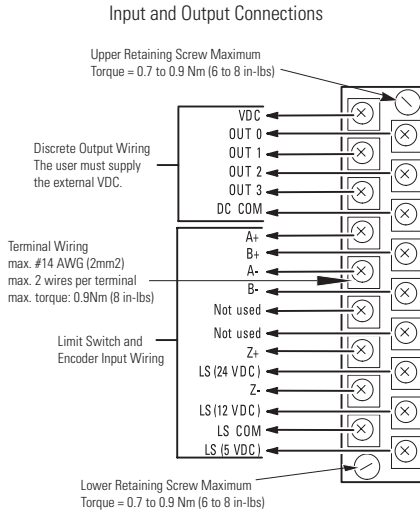
### 1746-FIO4I



### 1746-FIO4V



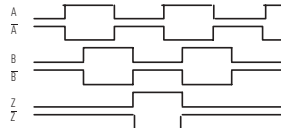
### 1746-HSCE Differential Encoder



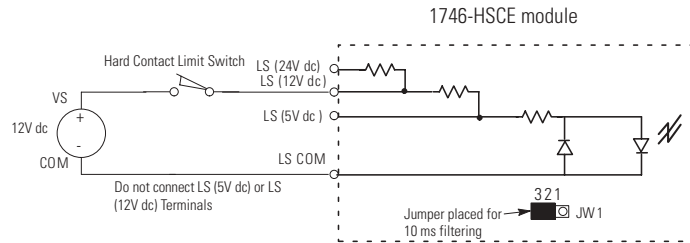
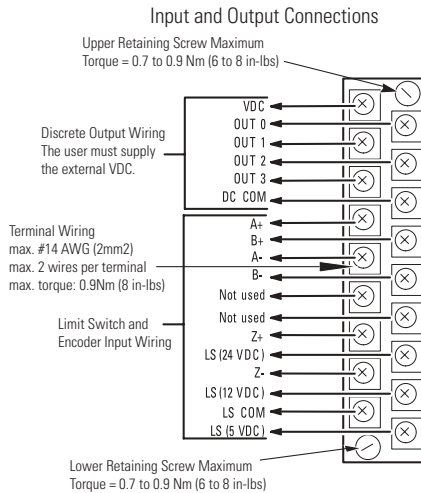
1. Refer to your encoder manual for proper cable type and length.
2. Due to the topology of the module's input circuits, terminating the shield at the encoder end provides the highest immunity to EMI interference. Connect EARTH ground directly to the encoder connector housing.

#### Differential Encoder Output Waveforms

The figure below shows the different encoder output waveforms. If your encoder matches these waveforms, the encoder signals can be directly connected to the associated screw terminals on the module. For example, the A lead from the encoder is connected to the module's A+ screw. If your encoder does not match these waveforms, some wiring modifications may be necessary. See the High-Speed Counter Module User Manual, publication 1746-6.5 for a description of these modifications.



### 1746-HSCE Limit Switch (12V dc Hard Contact)

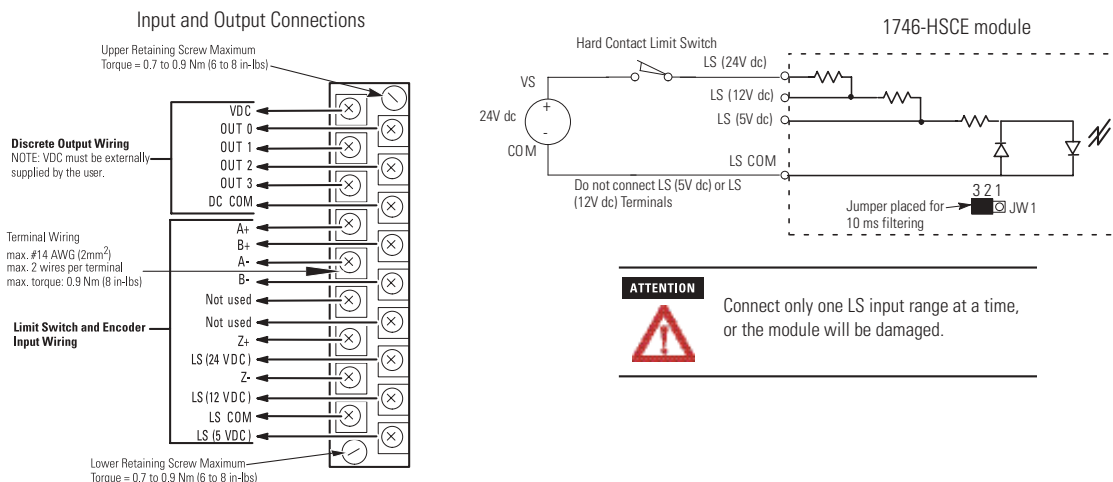


**ATTENTION**

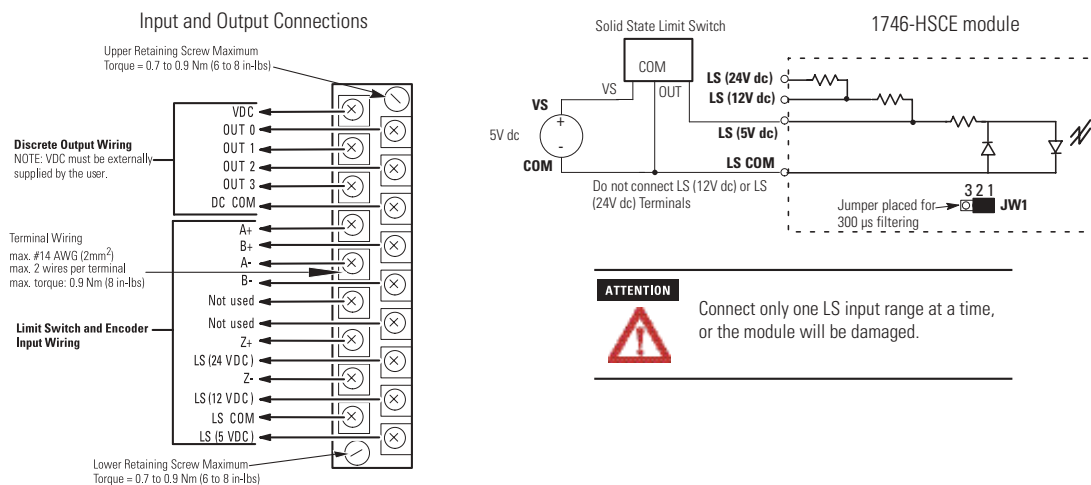


Connect only one LS input range at a time, or the module will be damaged.

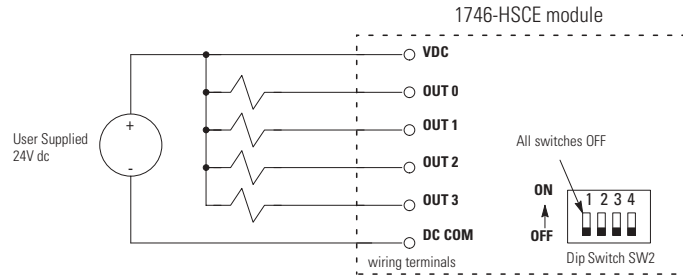
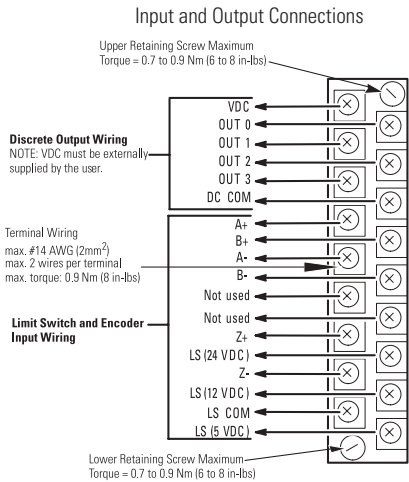
### 1746-HSCE Limit Switch (24V dc Hard Contact)



### 1746-HSCE Limit Switch (5V dc Solid State)



### 1746-HSCE Outputs

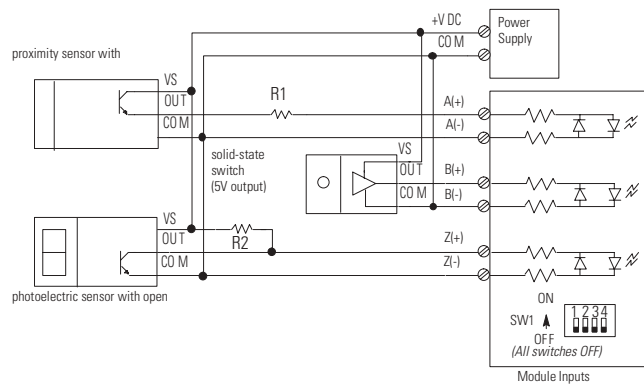
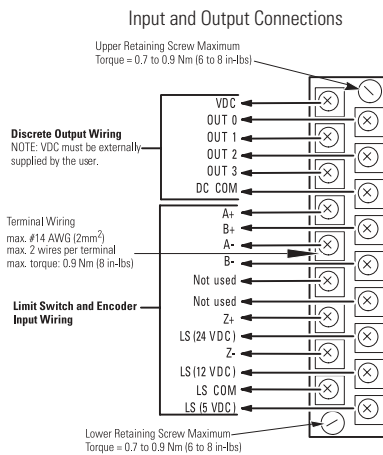


**ATTENTION**

Do not use incandescent lamps as output indicators. The high peak inrush current required to heat the filament can damage the module's output circuits. Use LED type indicators that satisfy the output circuit ratings, such as Allen-Bradley 800A and 800T LED indicators.

The outputs are not electrically isolated from each other. (They are referenced to the same output common terminal.) However, outputs are isolated from the rest of the circuitry to a level of 1500 volts.

### 1746-HSCE Single-Ended (Discrete Devices)



**IMPORTANT**

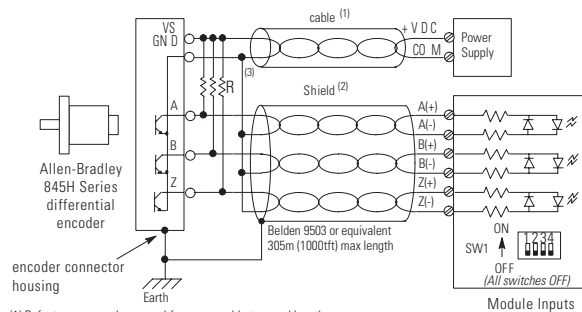
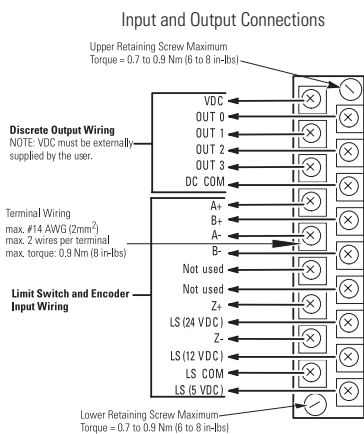
This diagram shows the sensors operation from a common power supply. Separate power supplies for each circuit can be used.

The resistor (R1) value depends on the power supply value (VS).

The pullup resistor (R2) value depends on the power supply value (VS).



### 1746-HSCE Single-Ended Encoder (Open-Collector)



- (1) Refer to your encoder manual for proper cable type and length.
- (2) Due to the topology of the module's input circuits, terminating the shield at the encoder end provides the highest immunity to EMI interference. Connect EARTH ground directly to the encoder connector housing.
- (3) The pullup resistor (R) value depends on the power supply value (VS). The table below lists the resistor values for typical power supply values. These resistors must be located at the encoder end of the cable.

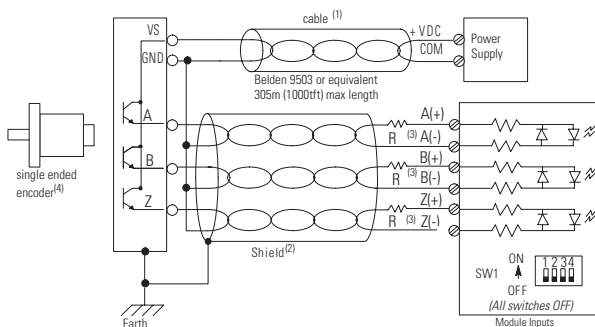
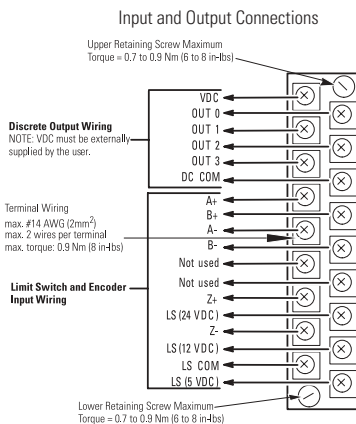
VS Value	R Value	Maximum Output Leakage
+5V dc	150 ohm 1/4W 5%	6.3 mA
+12V dc	1800 ohm 1/4W 5%	1.5 mA
+24V dc	4700 ohm 1/4W 5%	1.2 mA

#### Single-Ended Encoder Output Waveforms

The figure below shows the single-ended output waveforms. When the waveform is low, the encoder output transistor is ON.



### 1746-HSCE Single-Ended Encoder (Sourcing)

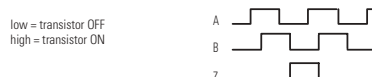


- (1) Refer to your encoder manual for proper cable type and length.
- (2) Due to the topology of the module's input circuits, terminating the shield at the encoder end provides the highest immunity to EMI interference. Connect EARTH ground directly to the encoder connector housing.
- (3) The resistor (R) value depends on the power supply value (VS). The table below lists the resistor values for typical power supply values. These resistors must be located at the encoder end of the cable.
- (4) The Allen-Bradley 845H sourcing encoder is not compatible with this module.

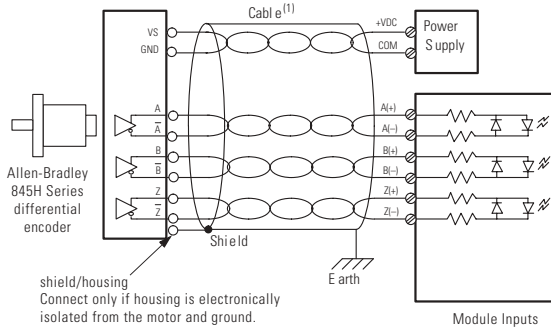
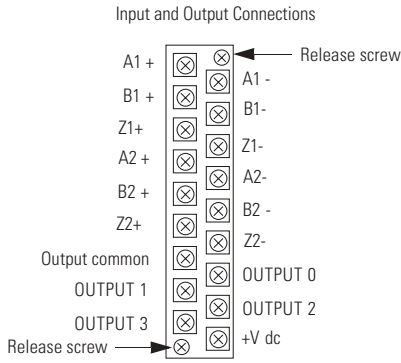
VS Value	R Value	Maximum Output Leakage
+5V dc	no resistor needed	6.3 $\mu$ A
+12V dc	1800 ohm 1/4W 5%	1.5 $\mu$ A
+24V dc	4700 ohm 1/4W 5%	1.2 $\mu$ A

#### Single-Ended Encoder Output Waveforms (Sourcing)

The figure below shows the single-ended encoder output waveforms. When the waveform is low, the encoder output transistor is OFF.



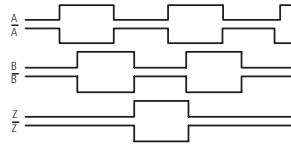
### 1746-HSCE2 – Differential Encoder



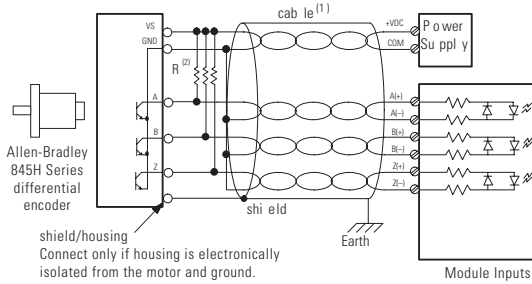
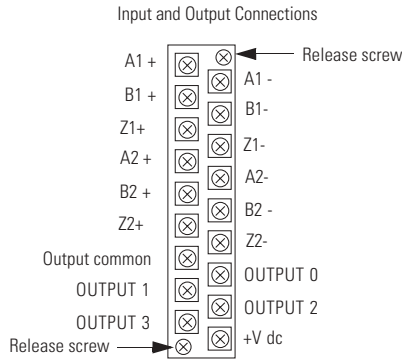
1 Refer to your encoder manual for proper cable type. The type of cable used should be twisted pair, individually shielded cable with a maximum length of 300m (1000 ft.).

#### Differential Encoder Output Waveforms

The figure below shows the different encoder output waveforms. If your encoder matches these waveforms, the encoder signals can be directly connected to the associated screw terminals on the module. For example, the A lead from the encoder is connected to the module's A+ screw. If your encoder does not match these waveforms, some wiring modifications may be necessary. See the user's manual for your encoder.



### 1746-HSCE2 Single-Ended Encoder (Open-Collector)



1. Refer to your encoder manual for proper cable type. The type of cable used should be twisted pair, individually shielded cable with a maximum length of 300m (1000 ft.).(2)
2. External resistors are needed if not internal to the encoder. The pull-up resistor (R) value depends on the power supply value. The table below shows resistor values for typical supply voltages. To calculate the resistor value, use one of the following formulas:

For 5V dc jumper position:  $R = \frac{(V_{cc} - V_{min})}{I_{min}}$

For 24V dc jumper position:  $R = \left[ \frac{(V_{cc} - V_{min})}{I_{min}} - 1K\Omega \right]$

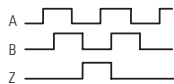
where: R = pull-up resistor value  
 V<sub>cc</sub> = power supply voltage  
 V<sub>min</sub> = 4.2V dc  
 I<sub>min</sub> = 6.3mA

Power Supply Voltage (V <sub>cc</sub> )	Pull-up Resistor Value (R) <sup>1</sup>
5V dc	127 W
12V dc	238 W
24V dc	2140 W

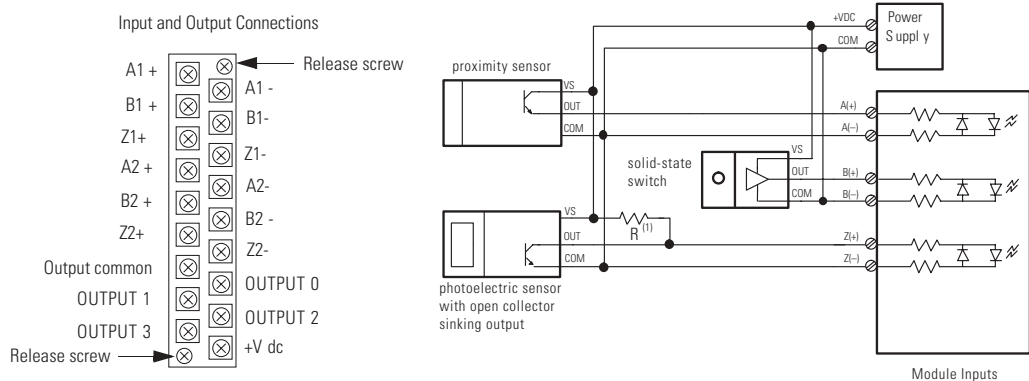
1 Resistance values may change, depending upon your application.

#### Single-Ended Encoder Output Waveforms

The figure below shows the single-ended encoder output waveforms. When the waveform is low, the encoder output transistor is on. When the waveform is high, the encoder output transistor is off.



### 1746-HSCE2 Single-Ended (Discrete Devices)



1. External resistors are needed if not internal to the encoder. The pull-up resistor (R) value depends on the power supply value. The table below shows resistor values for typical supply voltages. To calculate the resistor value, use one of the following formulas:

$$\text{For 5V dc jumper position: } R = \frac{(V_{cc} - V_{min})}{I_{min}}$$

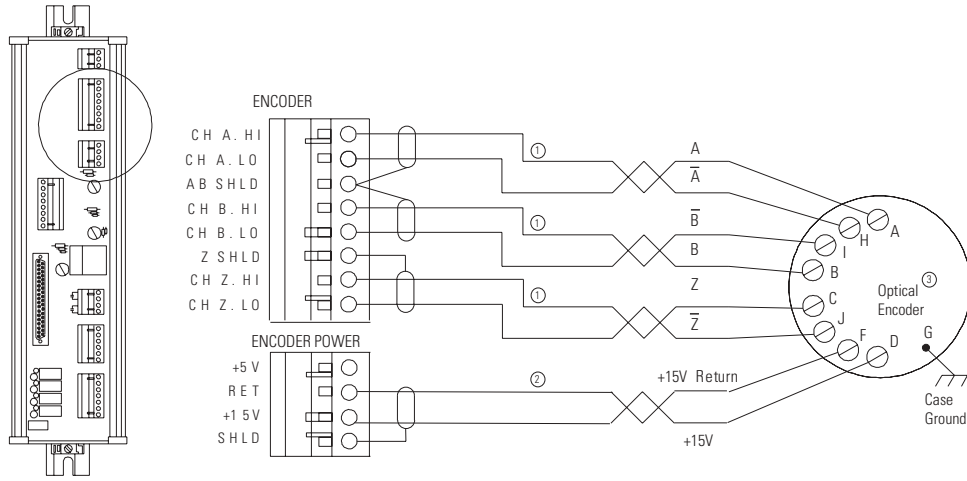
$$\text{For 24V dc jumper position: } R = \left[ \frac{(V_{cc} - V_{min})}{I_{min}} - 1K\Omega \right]$$

where: R = pull-up resistor value  
 V<sub>cc</sub> = power supply voltage  
 V<sub>min</sub> = 4.2V dc  
 I<sub>min</sub> = 6.3mA

Power Supply Voltage (V <sub>cc</sub> )	Pull-up Resistor Value (R) <sup>1</sup>
5V dc	127 W
12V dc	238 W
24V dc	2140 W

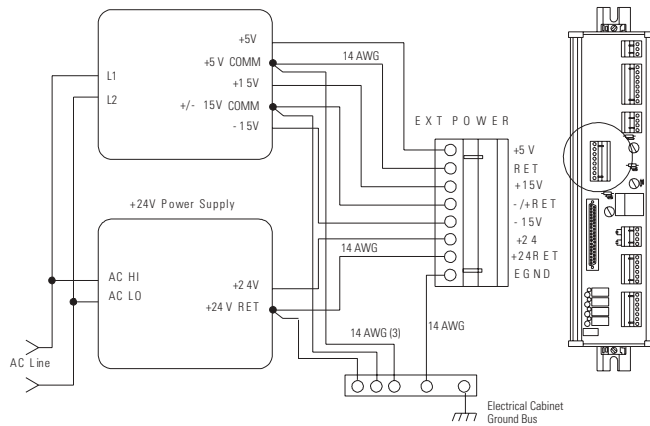
<sup>1</sup> Resistance values may change, depending upon your application.

### 1746-HSRV – Wiring a 15V Encoder

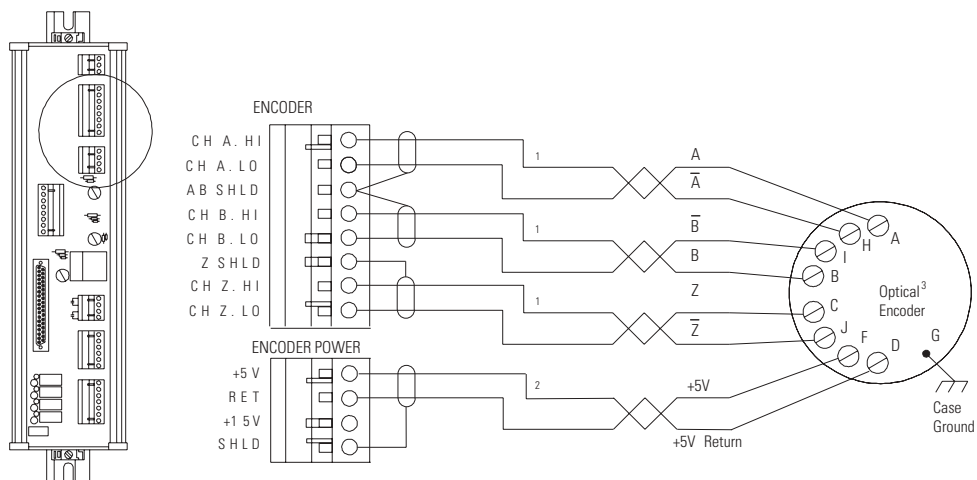


- <sup>1</sup> Use three pair 22 gauge individually twisted and shielded cable.
- <sup>2</sup> Use one pair 18 gauge twisted and shielded cable.
- <sup>3</sup> Encoders must have +5V compatible differential line drive outputs on channels A, B, and Z (DS 8830 or equivalent (845H)).

### Wiring the power supply

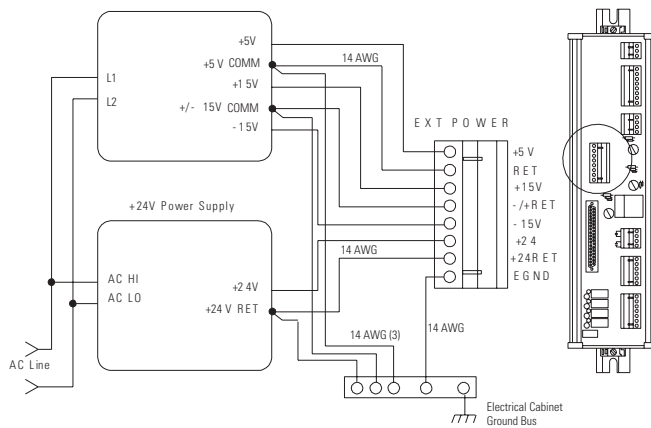


### 1746-HSRV – Wiring a 5V Encoder

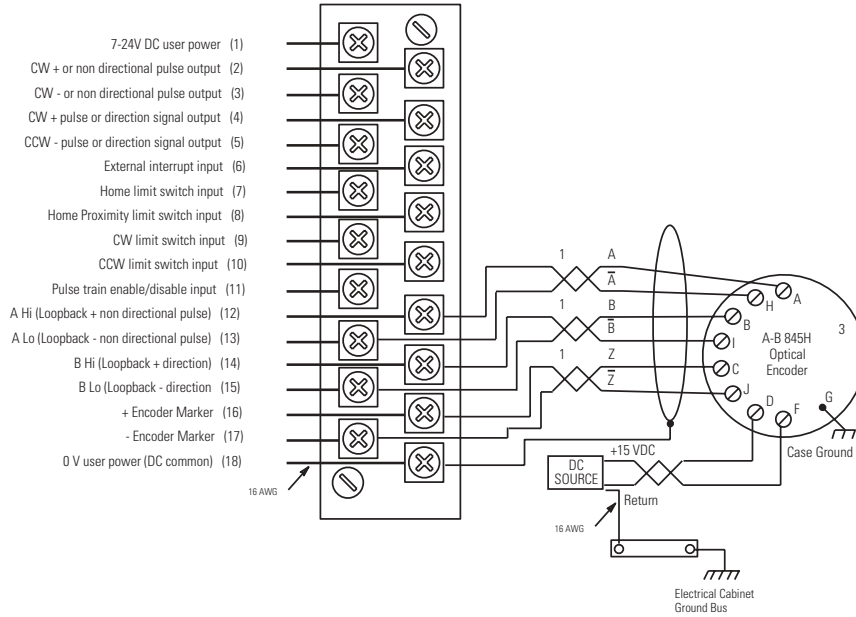


- <sup>1</sup> Use three pair 22 gauge individually twisted and shielded cable.
- <sup>2</sup> Use one pair 18 gauge twisted and shielded cable.
- <sup>3</sup> Encoders must have +5V compatible differential line drive outputs on channels A, B, and Z (DS 8830 or equivalent (845H)).

### Wiring the power supply

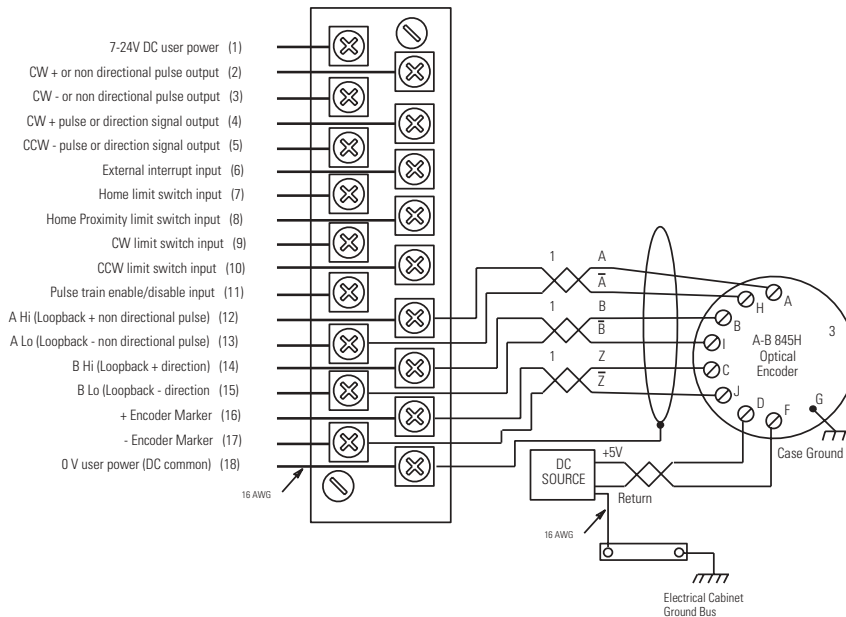


**1746-HSTP1 – Wiring a 15V Encoder**



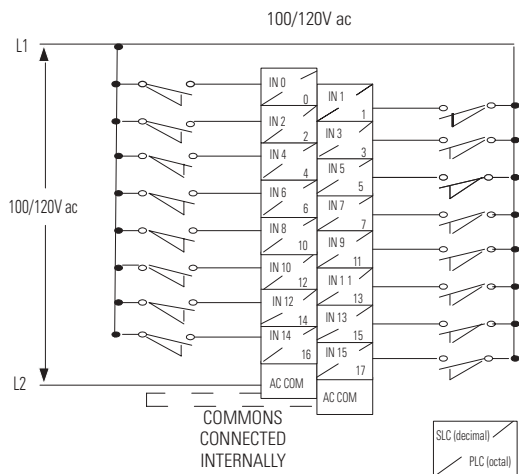
1. Use 3-pair, #22 gauge individually twisted and shielded pair, Belden 9504 or equivalent.
2. Use 1-pair, #18 gauge twisted and shielded cable.
3. Encoders must have +5V compatible differential line drive outputs on channels A, B and Z. (DS8830 or equivalent - Allen-Bradley 845H).
4. +15V from encoder power source - connect encoder return to 0V user power (DC common) at the power supply sources.

**1746-HSTP1 – Wiring a 5V Encoder**

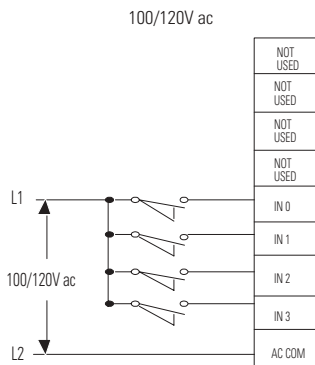


1. Use 3-pair, #22 gauge individually twisted and shielded pair, Belden 9504 or equivalent.
2. Use 1-pair, #18 gauge twisted and shielded cable.
3. Encoders must have +5V compatible differential line drive outputs on channels A, B and Z. (DS8830 or equivalent - Allen-Bradley 845H).
4. +5V from encoder power source - connect encoder return to 0V user power (DC common) at the power supply sources.

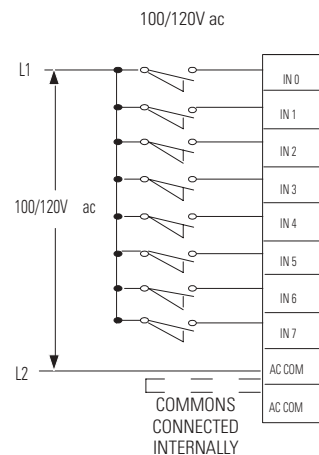
**1746-IA16**



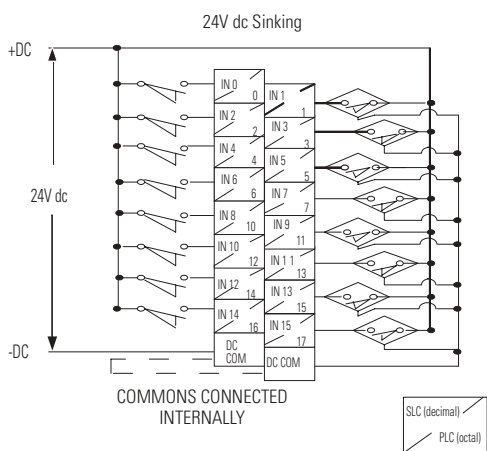
**1746-IA4**



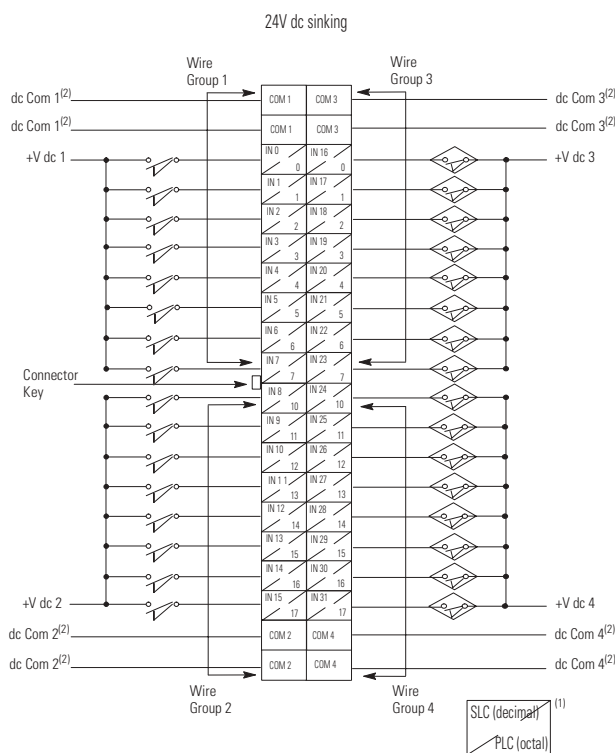
**1746-IA8**



**1746-IB16**



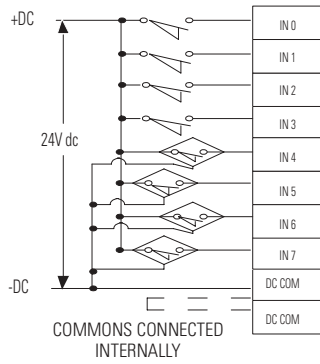
**1746-IB32**



(1) See decimal and octal coding information at the top of the page.  
 (2) The dc Com pins on the 1746-IB32 input module are isolated between the four groups and the two com pins in each group are connected internally. To maintain group isolation provided by 32-point I/O modules, use a 1492 terminal block that provides group isolation. Consult 1492 documentation or your Allen-Bradley Sales Office for additional information.

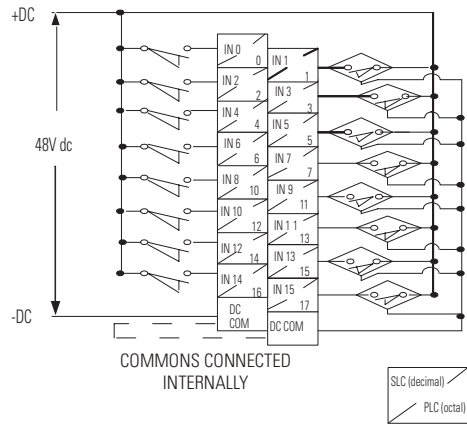
**1746-IB8**

24V dc Sinking



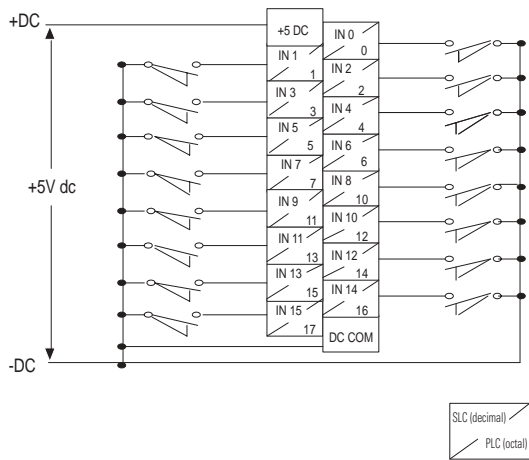
**1746-IC16**

48V dc Sinking



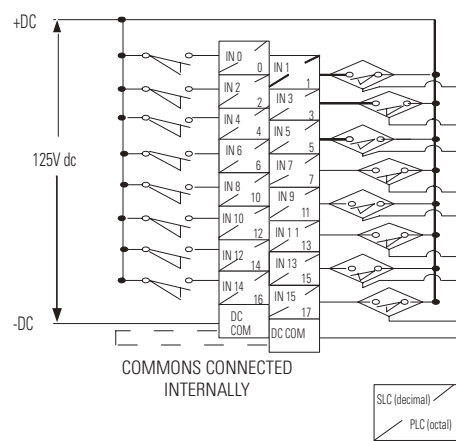
**1746-IG16**

TTL Input (Low = True)



**1746-IH16**

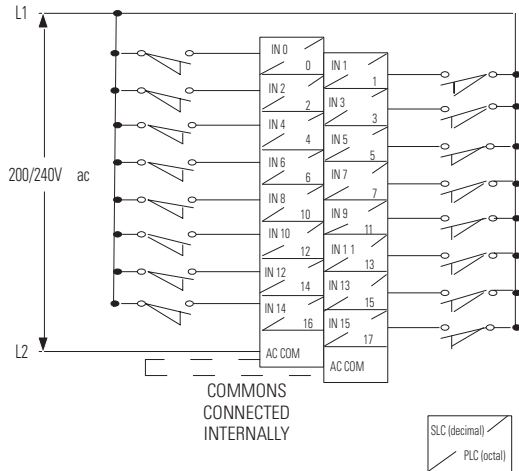
125V dc Sinking





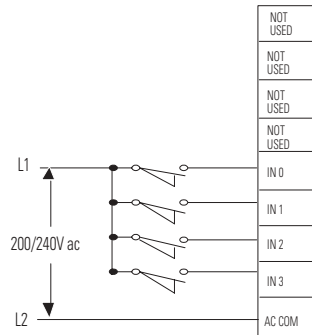
**1746-IM16**

200/240V ac



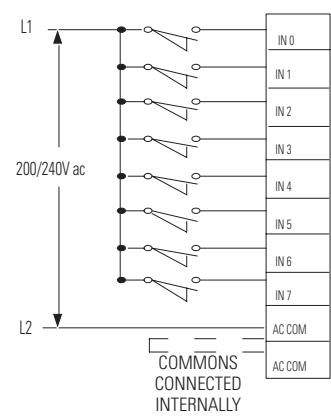
**1746-IM4**

200/240V ac



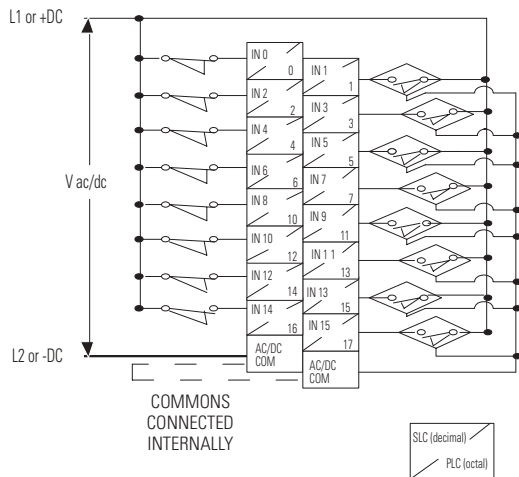
**1746-IM8**

200/240V ac

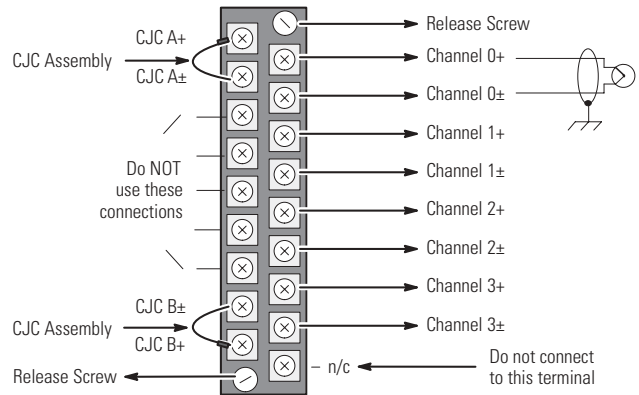


**1746-IN16**

24V ac/dc Sinking



**1746-INT4**



Cold Junction Compensation (CJC)

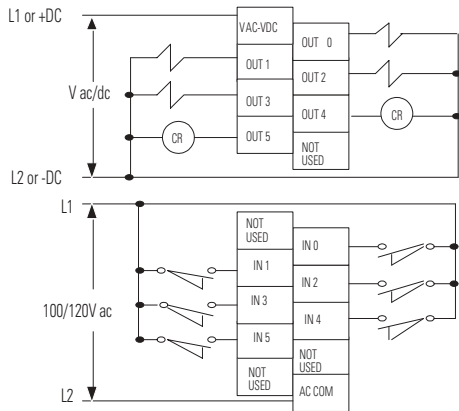
**ATTENTION**



Do not remove or loosen the cold junction compensating thermistors located on the terminal block. Both thermistors are critical to ensure accurate thermocouple input readings at each channel. The module will not operate in the thermocouple mode if a thermistor is removed.

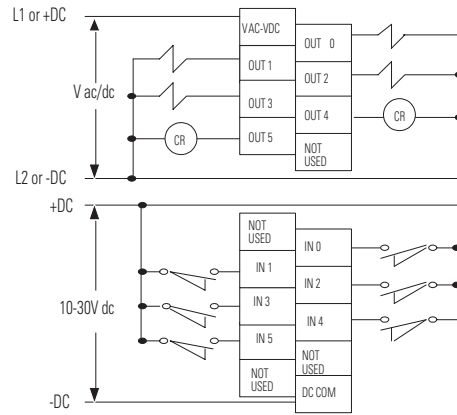
**1746-IO12**

100/120V ac INPUT - RELAY OUTPUT



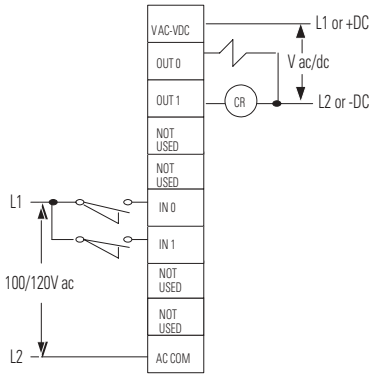
**1746-IO12DC**

24V dc INPUT - RELAY OUTPUT



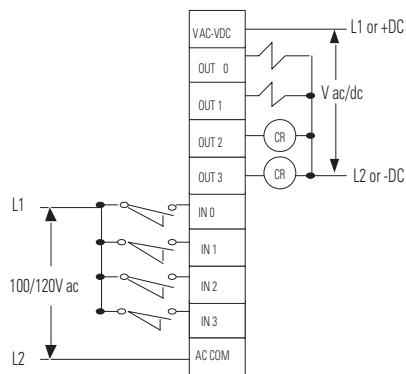
**1746-IO4**

100/120V ac Input - Relay Output



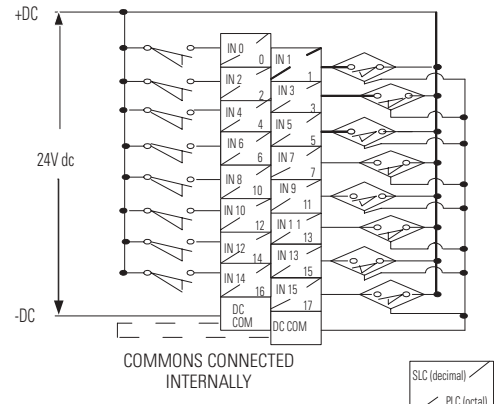
**1746-IO8**

100/120V ac Input - Relay Output

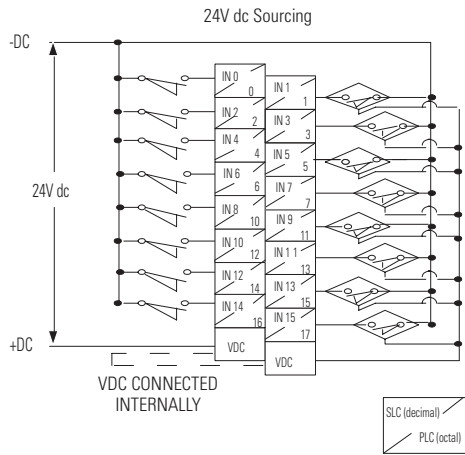


**1746-ITB16**

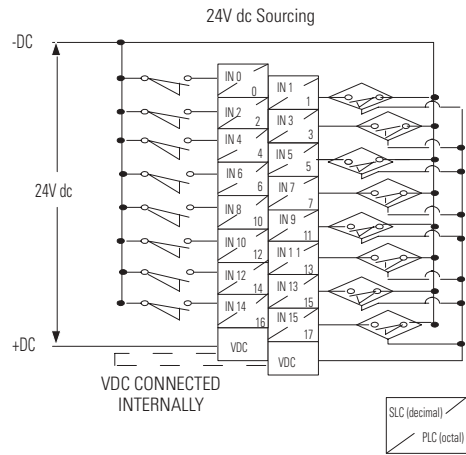
24V dc Sinking



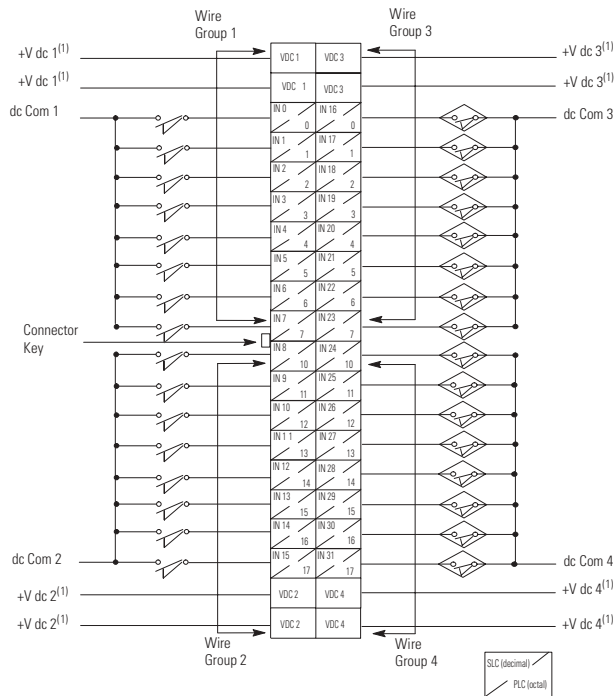
**1746-ITV16**



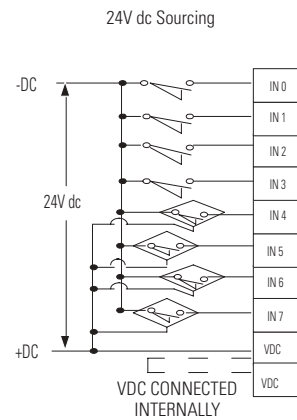
**1746-IV16**



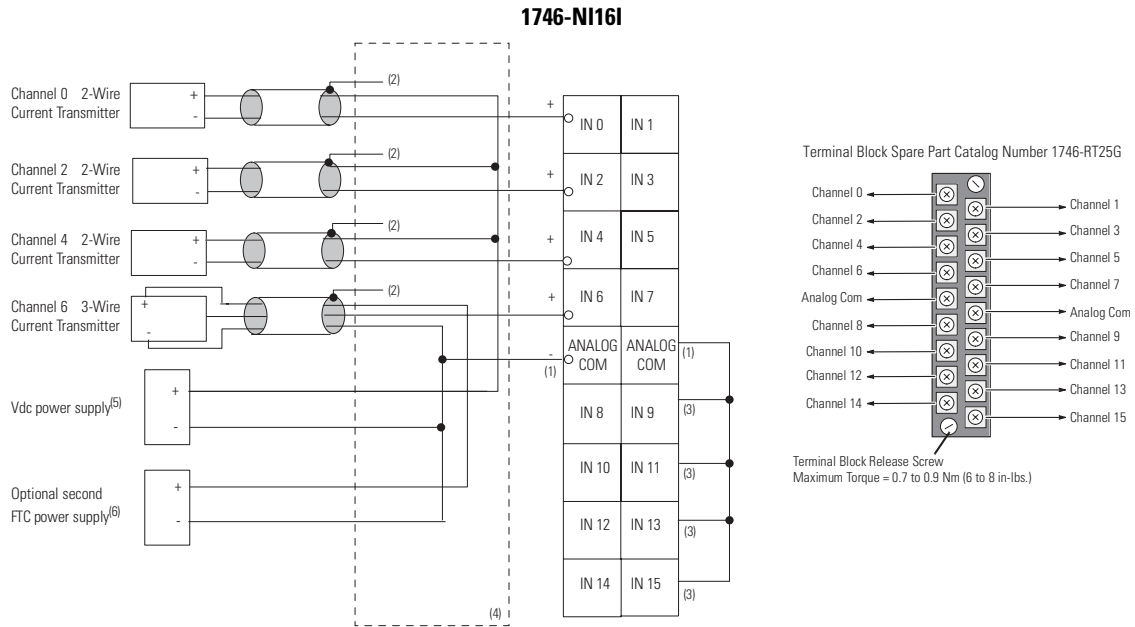
**1746-IV32**



**1746-IV8**

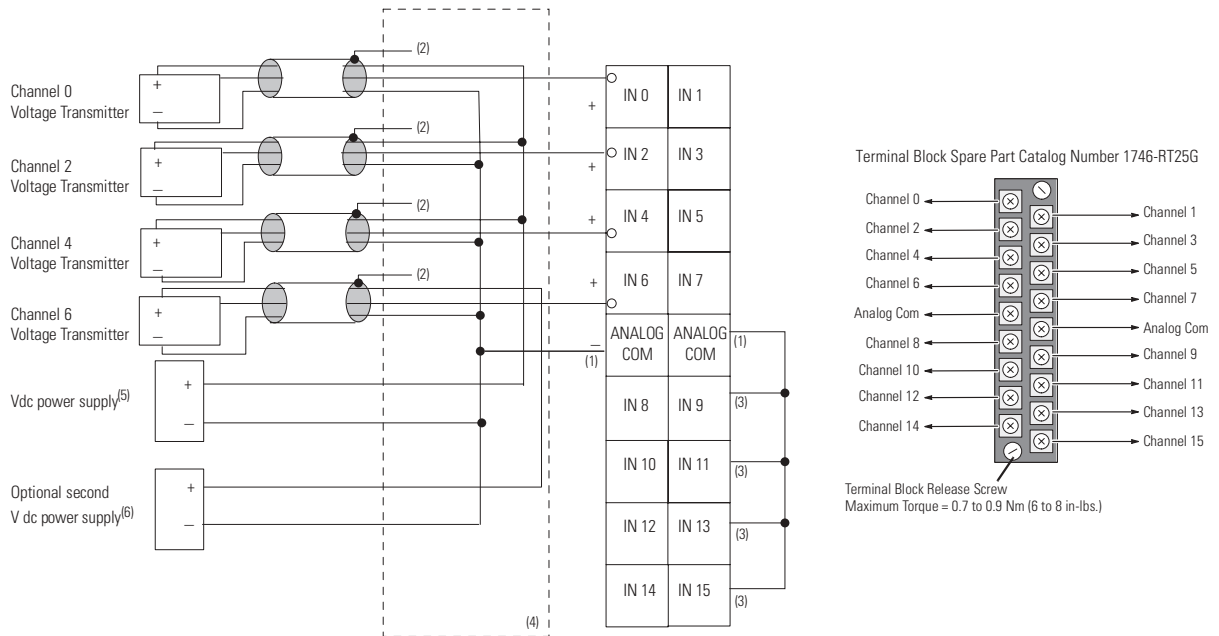


(1) The V dc pins on the 1746-IV32 input module are isolated between the four groups and the two V dc pins in each group are connected internally. To maintain group isolation provided by 32-point I/O modules, use a 1492 terminal block that provides group isolation. Consult 1492 documentation or your Allen-Bradley Sales Office for additional information.



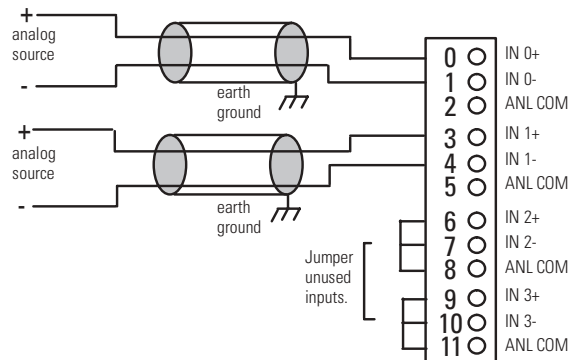
1. There are two common terminals for all of the 16 current inputs. These two analog common terminals are connected internally.
2. All shield wires should be connected to chassis mounting screws.
3. Unused channels should be connected to the analog common terminals (0 Volts).
4. If separate shielded cables are used for each analog input channel, interposing terminal blocks are needed to terminate up to 16 common wires. Then 1 to 4 common wires should be wired from the interposing terminal block to the 2 common terminals on the 1746-NI16I module.
5. The module does not provide loop power for analog inputs. Use a power supply that matches the transmitter specifications.
6. More than one power supply can be used if all supplies are class 2.

**1746-NI16V**

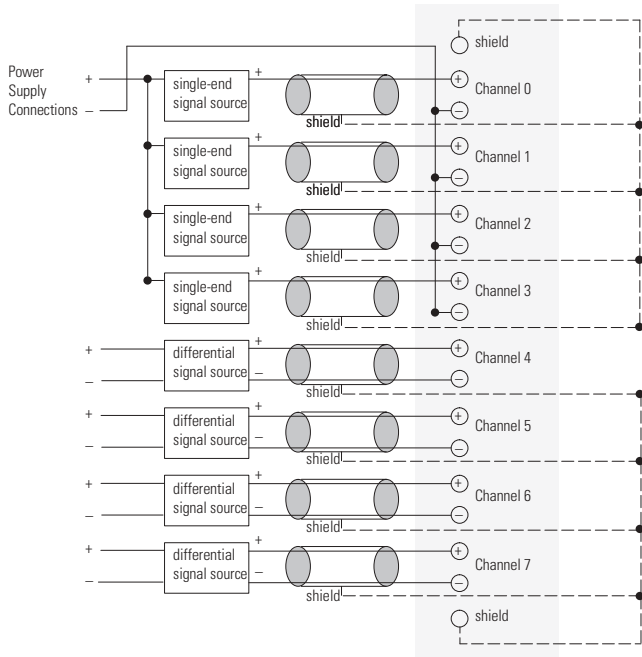


1. There are two common terminals for all of the 16 voltage inputs. These two analog common terminals are connected internally.
2. All shield wires should be connected to chassis mounting screws.
3. Unused channels should be connected to the analog common terminals (0 Volts).
4. If separate shielded cables are used for each analog input channel, interposing terminal blocks are needed to terminate up to 16 common wires. Then 1 to 4 common wires should be wired from the interposing terminal block to the 2 common terminals on the 1746-NI16V module.
5. The module does not provide loop power for analog inputs. Use a power supply that matches the transmitter specifications.
6. More than one power supply can be used if all supplies are class 2.

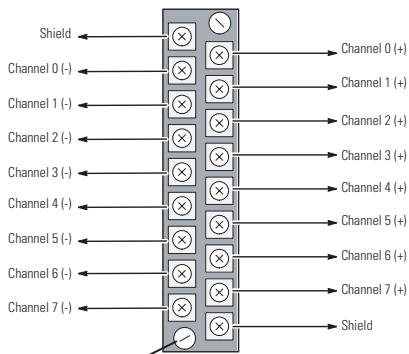
**1746-NI4**



1746-NI8



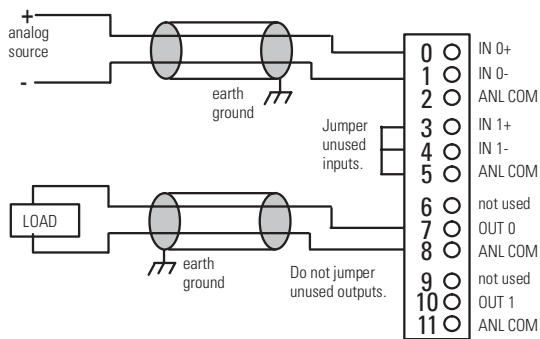
Terminal Block Spare Part Catalog Number 1746-RT25G



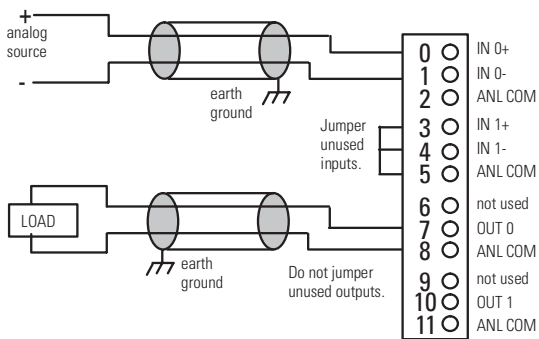
Terminal Block Release Screw  
Maximum Torque=0.7 to 0.9 Nm  
(6 to 8 in.-lbs.)

1. Use unshielded communication cable (Belden 8761) and keep the length as short as possible.
2. Connect only one end of the cable shield to earth ground.
3. Connect the shield drain wires for channels 0 to 3 to the top shield terminal.
4. Connect the shield drain wires for channels 4 to 7 to the bottom shield terminal.
5. Shield terminals are internally connected to chassis ground which is connected to earth ground via the SLC backplane.
6. Single-ended source commons may be jumpered together at the terminal block.
7. The channels are not isolated from each other.
8. If a differential signal source has an analog common, it cannot and must not be connected to the module.
9. The common mode voltage range is  $\pm 10.5$  volts. The voltage between any two terminals must be less than 15 volts when connected in a single-ended configuration.
10. The module does not provide power for the analog inputs.
11. Use a power supply that matches the transmitter (sensor) specifications.

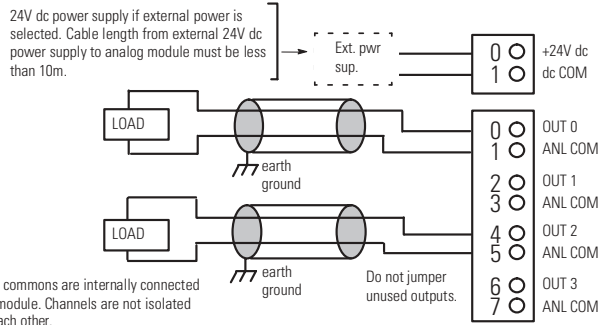
1746-NI04I



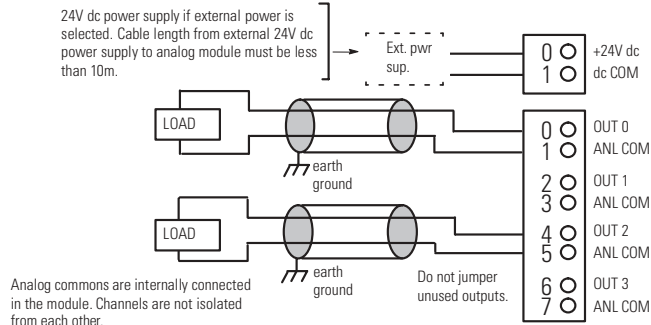
1746-NI04V



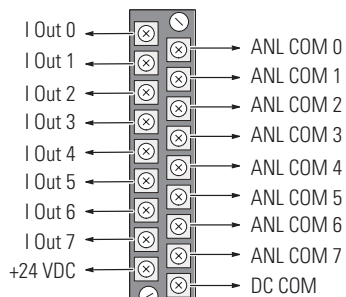
**1746-N04I**



**1746-N04V**



**1746-N08I**

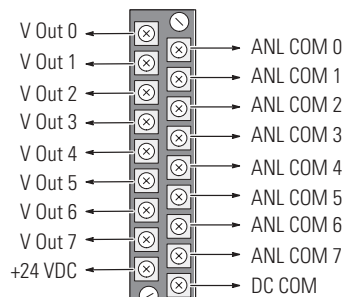


Terminal Block Release Screw  
 Maximum Torque = 0.7 to 0.9 Nm (6 to 8 in-lbs.)  
 Terminal Block Spare Part Catalog Number 1746-RT25G

**ATTENTION** ⚠ Disconnect power to the SLC before attempting to install, remove, or wire the removable terminal block. To avoid cracking the removable terminal block, alternate the removal of the slotted terminal block release screws.

**IMPORTANT** Channels are not isolated from each other. All analog commons (ANL COM) are connected together internally.

**1746-N08V**



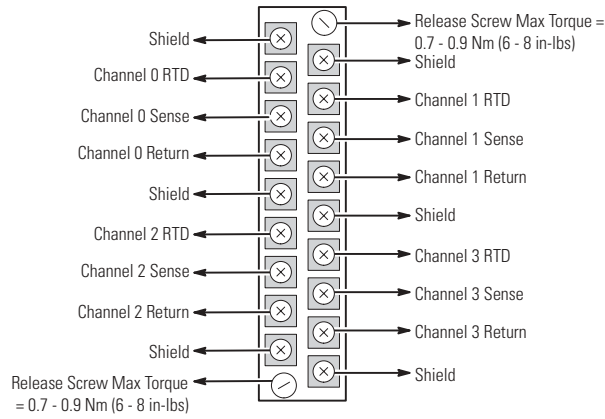
Terminal Block Release Screw  
 Maximum Torque = 0.7 to 0.9 Nm (6 to 8 in-lbs.)  
 Terminal Block Spare Part Catalog Number 1746-RT25G

**ATTENTION** ⚠ Disconnect power to the SLC before attempting to install, remove, or wire the removable terminal block. To avoid cracking the removable terminal block, alternate the removal of the slotted terminal block release screws.

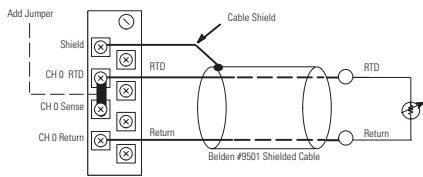
**IMPORTANT** Channels are not isolated from each other. All analog commons (ANL COM) are connected together internally.

### 1746-NR4

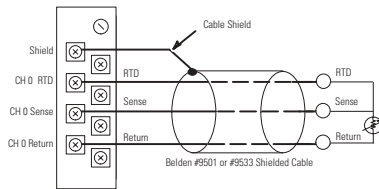
#### Terminal Connections



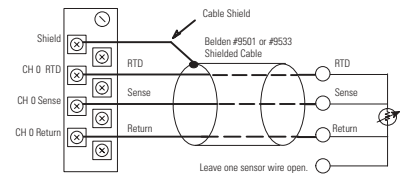
2-Wire RTD



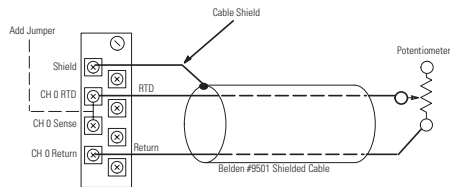
3-Wire RTD



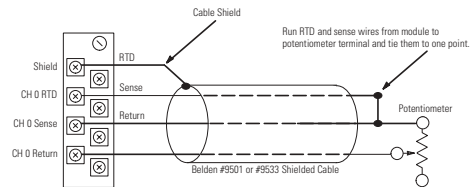
4-Wire RTD



2-Wire Potentiometer



3-Wire Potentiometer

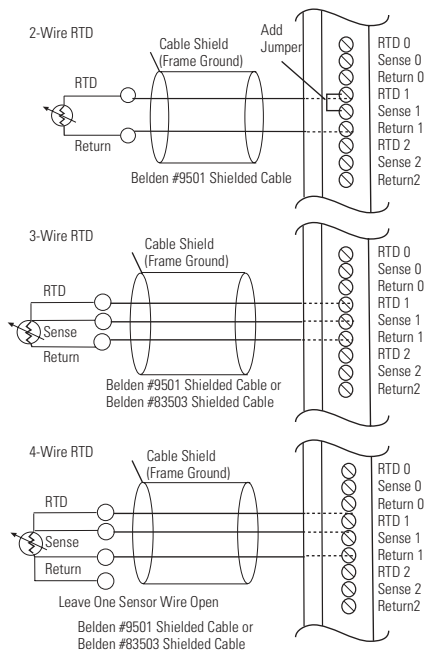
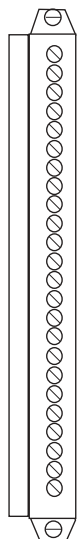


Potentiometer wiper arm can be connected to either the RTD or Return terminal, depending on whether you want increasing or decreasing resistance.

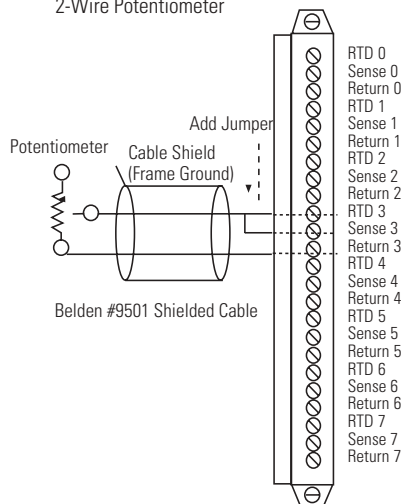


**1746-NR8**

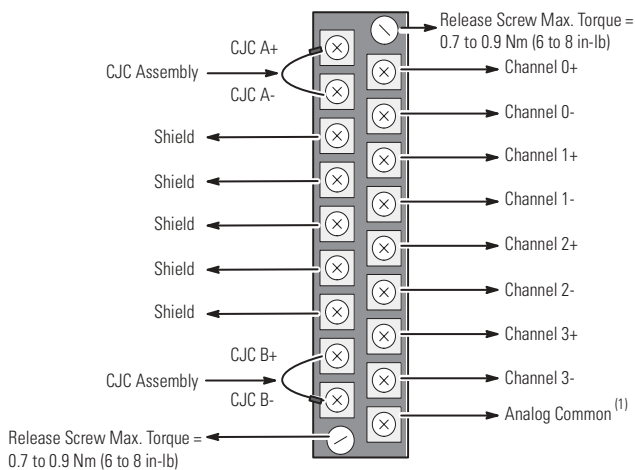
Terminal Connections



2-Wire Potentiometer



**1746-NT4**



Cold Junction Compensation (CJC)



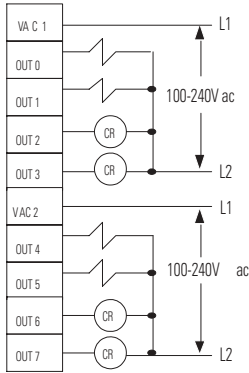
**ATTENTION** Do not remove or loosen the cold junction compensating thermistor assemblies located between the two upper and lower CJC terminals on the terminal block. Both thermistor assemblies are critical to ensure accurate thermocouple input readings at each channel. The module will not operate in the thermocouple mode if either assembly is removed.

**1746-NT8**



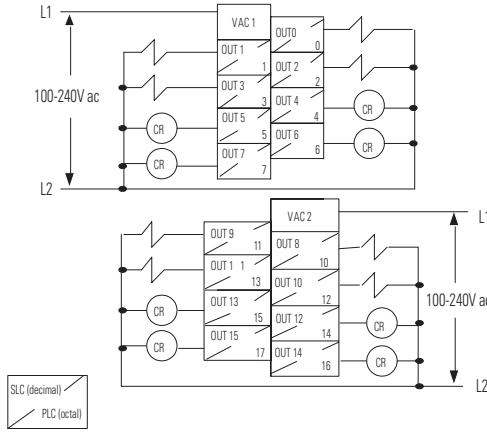
**1746-0A8**

100 to 240V ac Triac Output



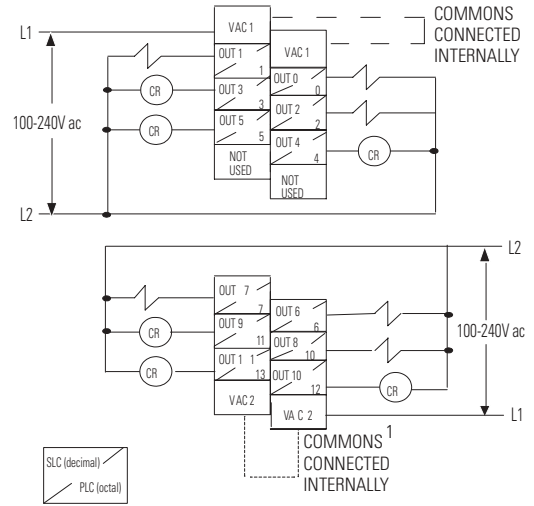
**1746-0A16**

100 to 240V ac Triac Output



**1746-0AP12**

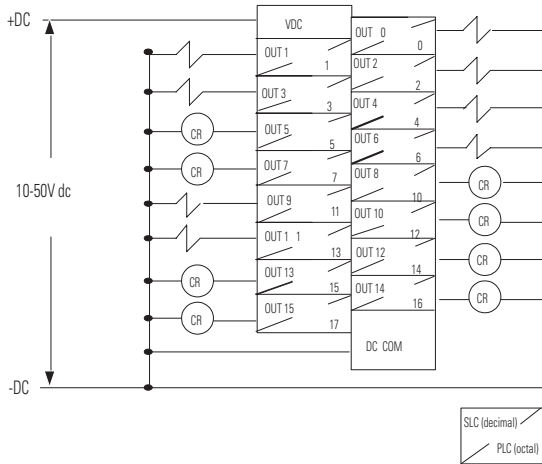
100 to 240V ac High Current Triac Output



1. This module provides fused commons for short circuit protection.

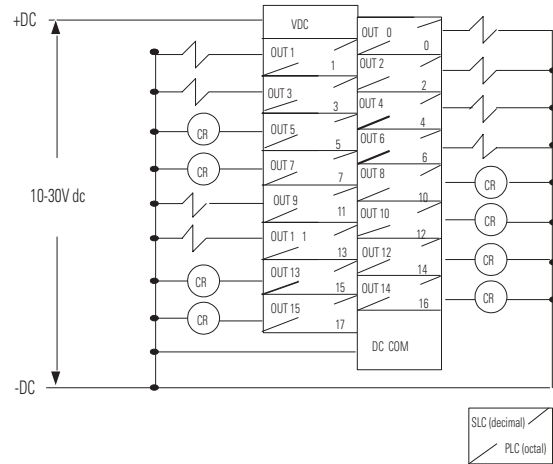
**1746-0B16**

Transistor Output-Sourcing

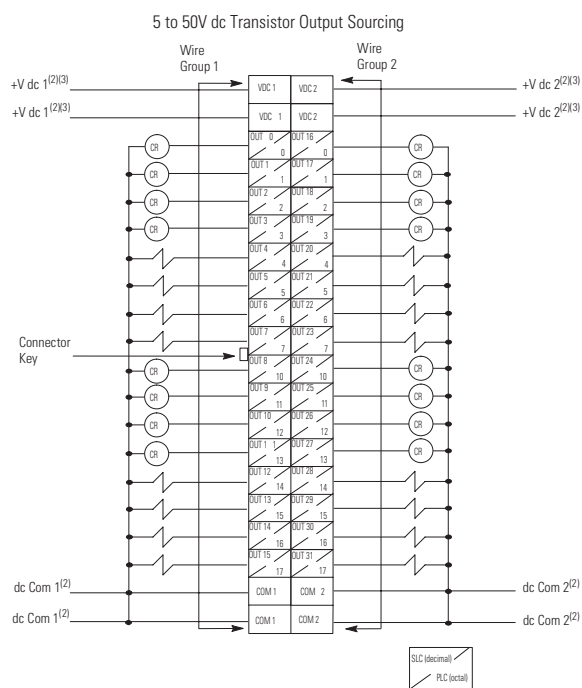


**1746-0B16E**

Transistor Output-Sourcing (electronically protected)

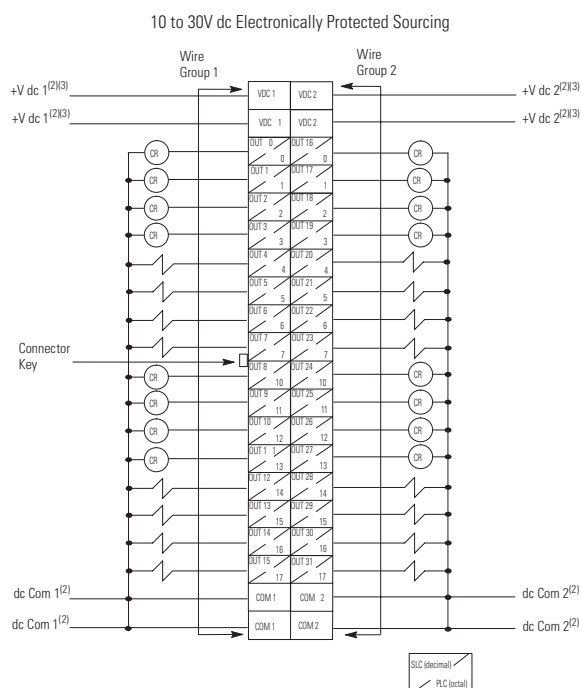


### 1746-OB32



1. The V dc and dc Com pins on the 1746-OB32 and 1746-OB32E output module are isolated between the two groups and the two V dc and two dc Com pins in each group are connected internally.
2. Both V dc pins must be connected to the dc power source if current for a common group is expected to exceed 2 amps. To maintain group isolation provided by 32-point I/O modules, use a 1492 terminal block that provides group isolation.

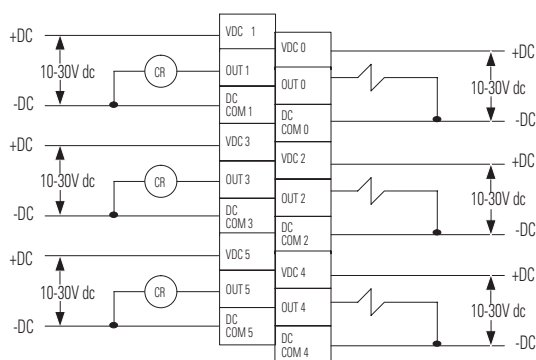
### 1746-OB32E



1. The V dc and dc Com pins on the 1746-OB32 and 1746-OB32E output module are isolated between the two groups and the two V dc and two dc Com pins in each group are connected internally.
2. Both V dc pins must be connected to the dc power source if current for a common group is expected to exceed 2 amps. To maintain group isolation provided by 32-point I/O modules, use a 1492 terminal block that provides group isolation.

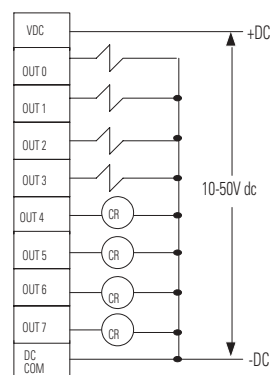
### 1746-OB6EI

10 to 30V dc Transistor Output-Sourcing  
Channel-to-Channel Isolated (electronically protected)

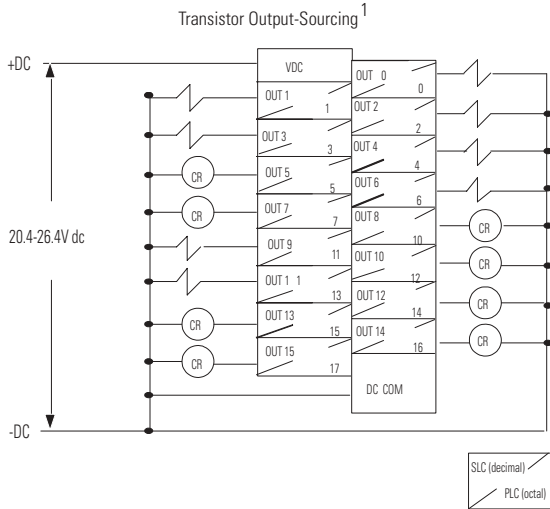


### 1746-OB8

10 to 50V dc Transistor Output-Sourcing

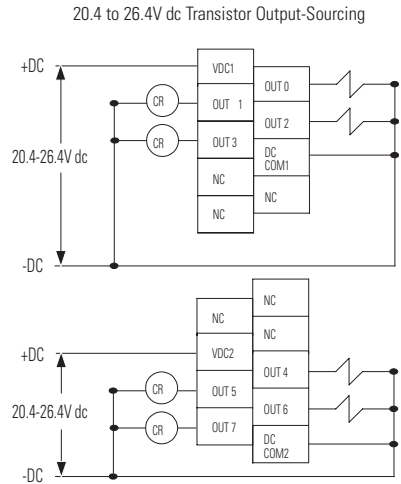


**1746-OBP16**

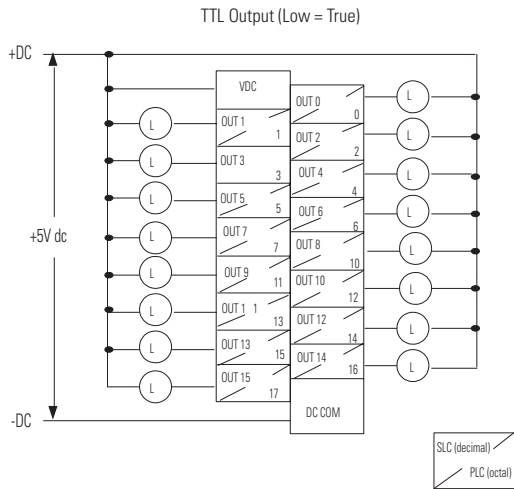


1. This module provides fused commons for short circuit protection.

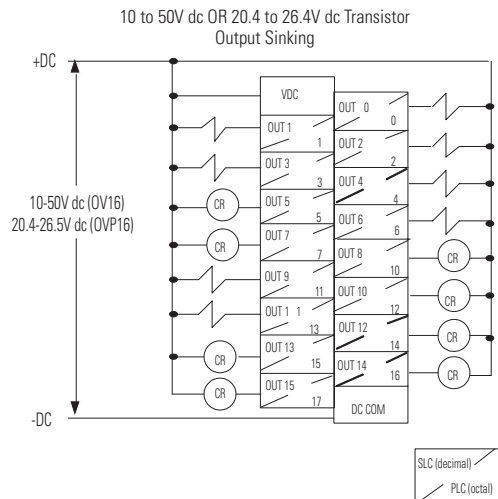
**1746-OBP8**



**1746-OG16**

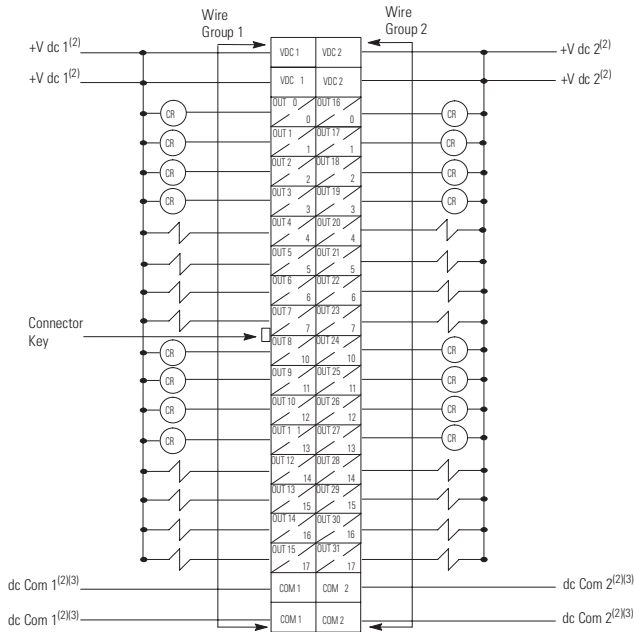


**1746-OV16**



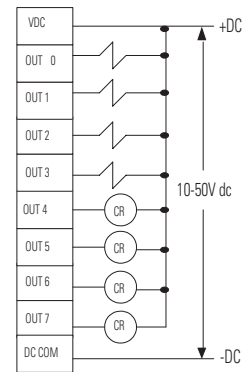
**1746-OV32**

5 to 50V dc Transistor Output Sinking



**1746-OV8**

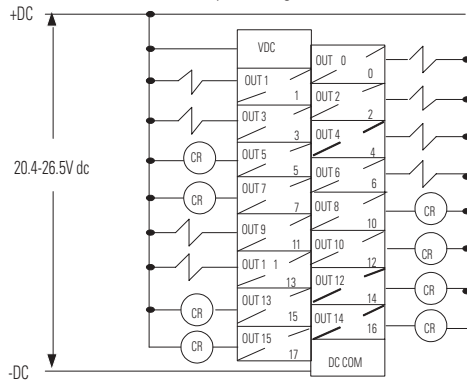
10 to 50V dc Transistor Output Sinking



1. The V dc and dc Com pins on the 1746-OV32 output module are isolated between the two groups. Also, the two V dc and two V Com pins in each group are connected internally.
2. Both dc Com pins must be connected to the dc power source if current for a common group is expected to exceed 2 amps. To maintain group isolation provided by 32-point I/O modules, use a 1492 terminal block that provides group isolation.

**1746-OVP16**

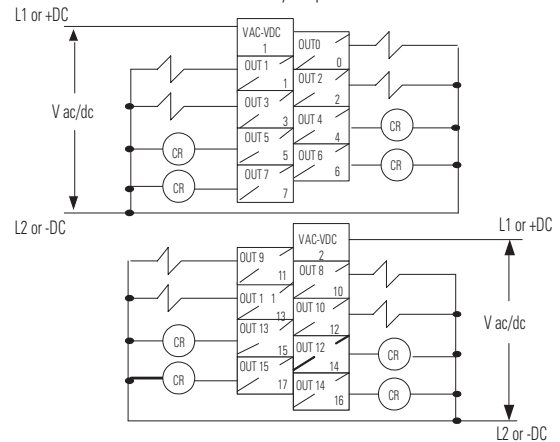
10 to 50V dc OR 20.4 to 26.4V dc Transistor<sup>1</sup> Output Sinking



1. This module provides fused commons for short circuit protection.

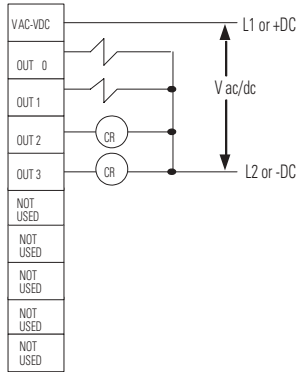
**1746-OW16**

Relay Output



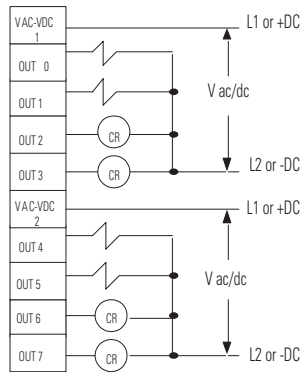
**1746-OW4**

Relay Output



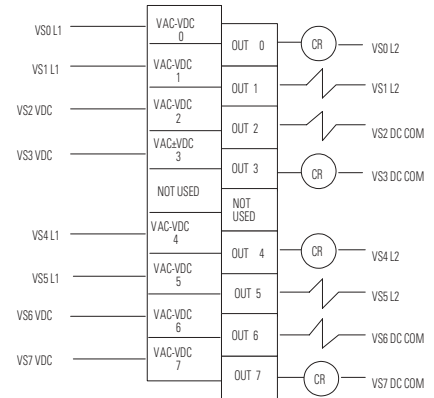
**1746-OW8**

Relay Output

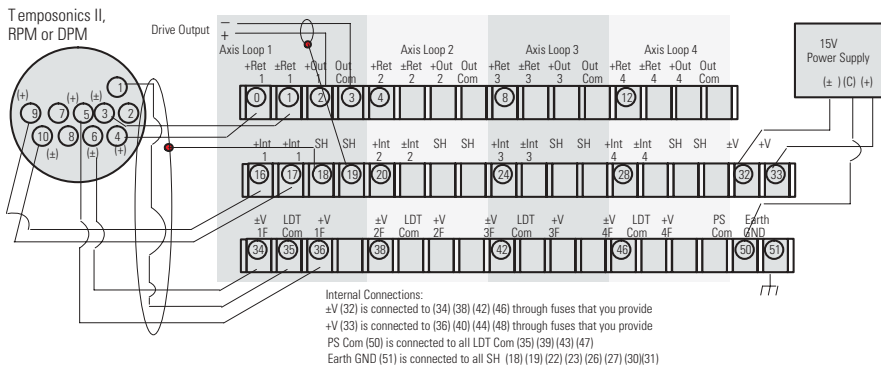


**1746-OX8**

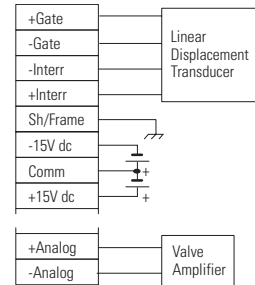
Channel-to-Channel Isolated Relay Output



**1746-QS Typical Connections to IFM Terminal Block**

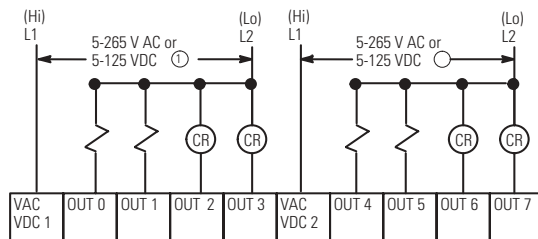


**1746-QV**

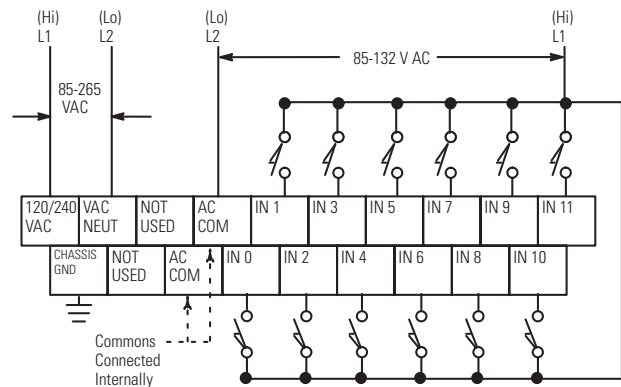
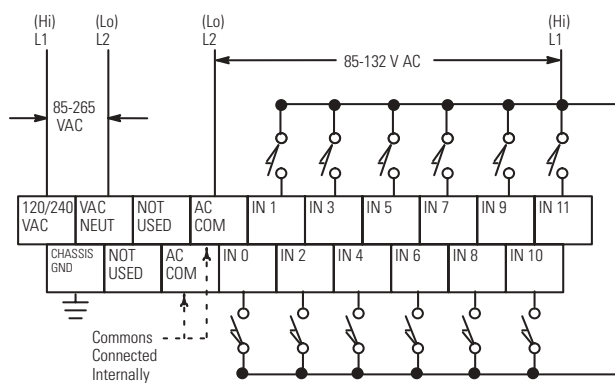
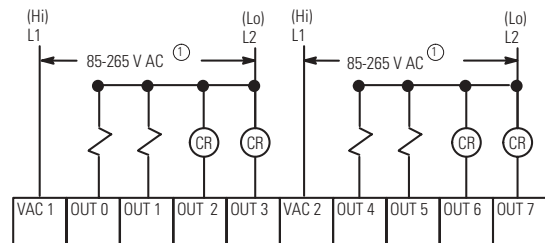


## 1747 I/O on Fixed Hardware Controllers

**1747-L20A**



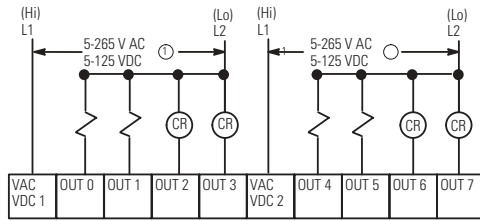
**1747-L20B**



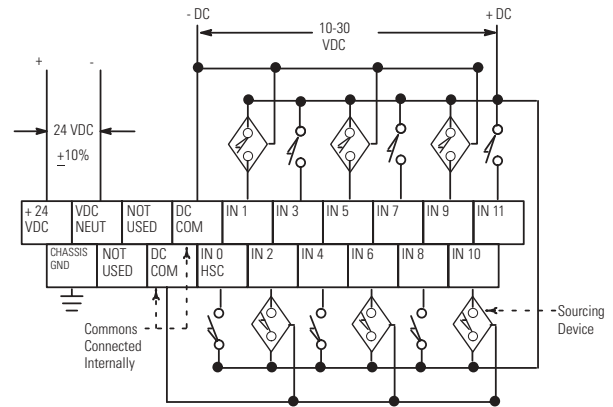
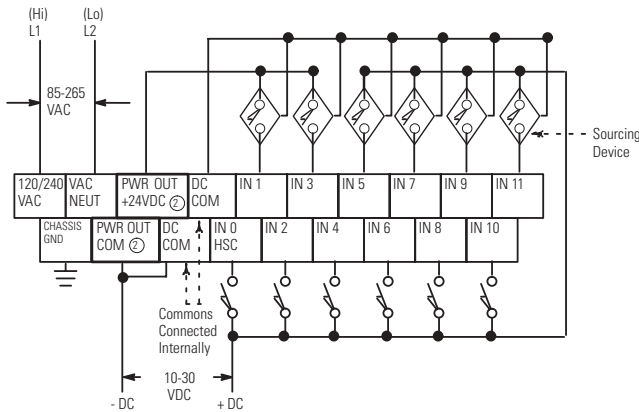
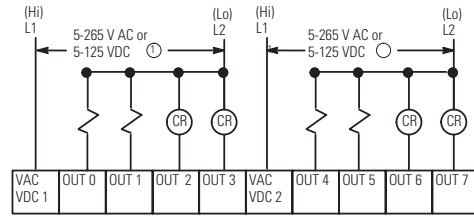
The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

**1747-L20C**



**1747-L20F**

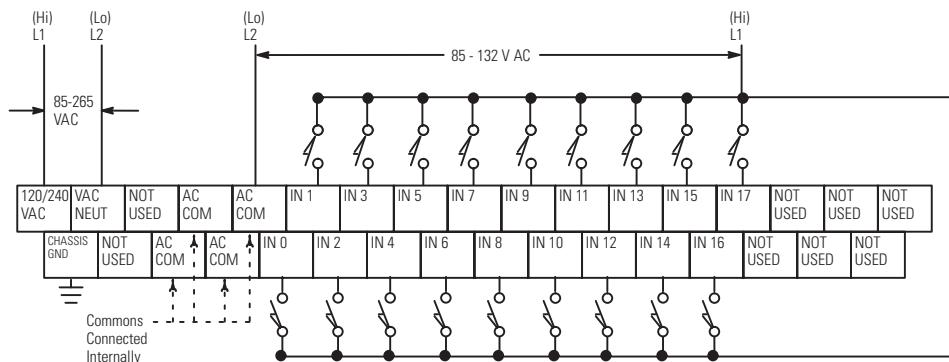
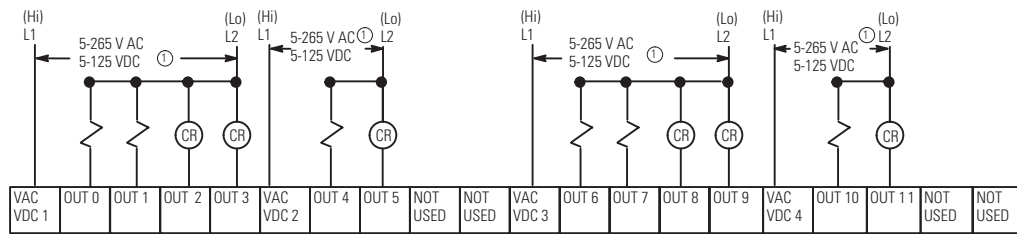


1. The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

2. 24V dc, 200mA user power is available for sensors.

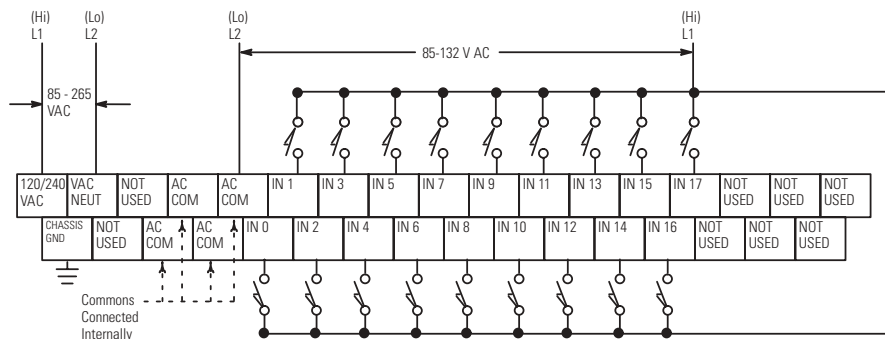
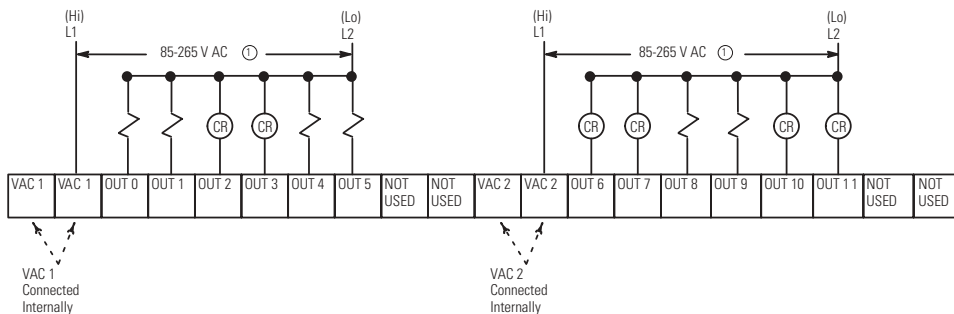
**1747-L30A**



These outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

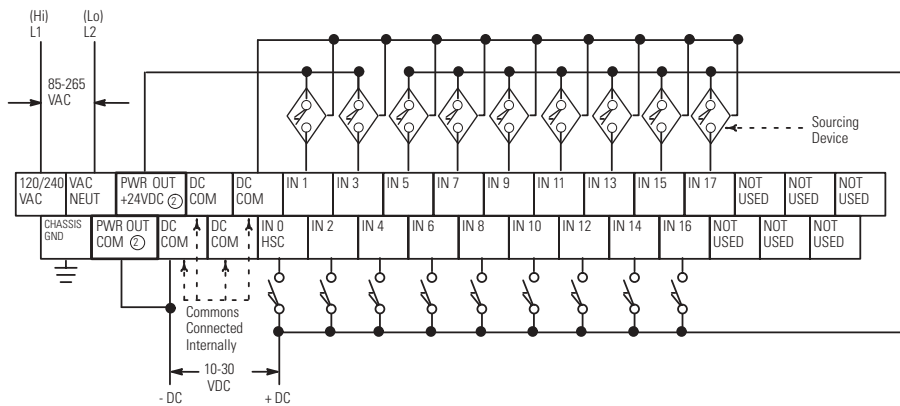
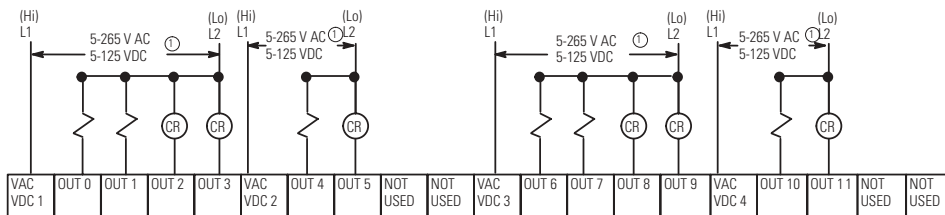


**1747-L30B**



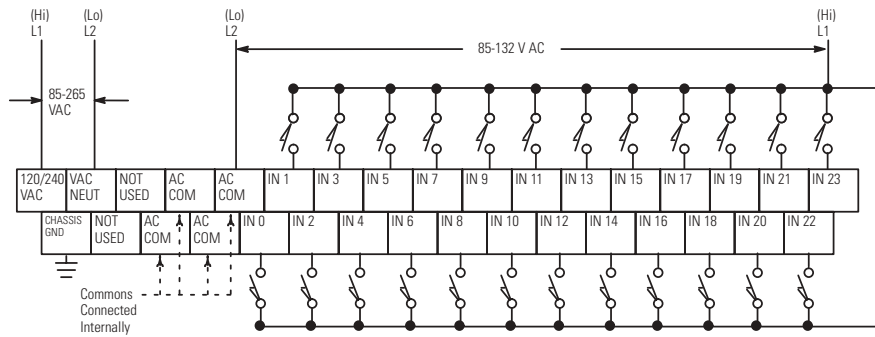
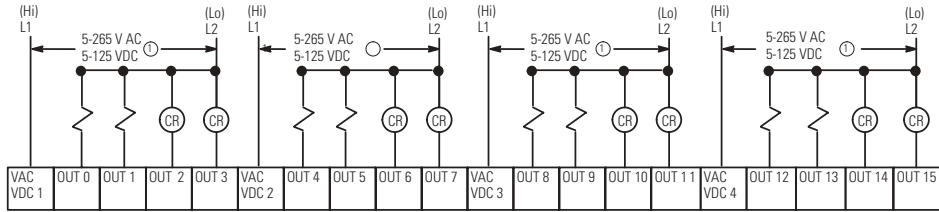
These outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

**1747-L30C**



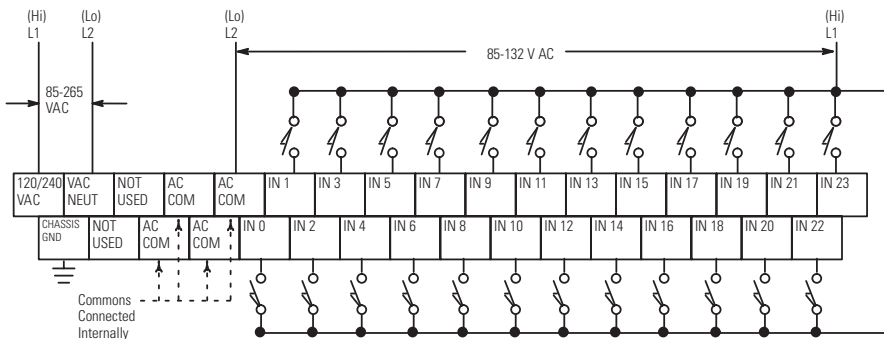
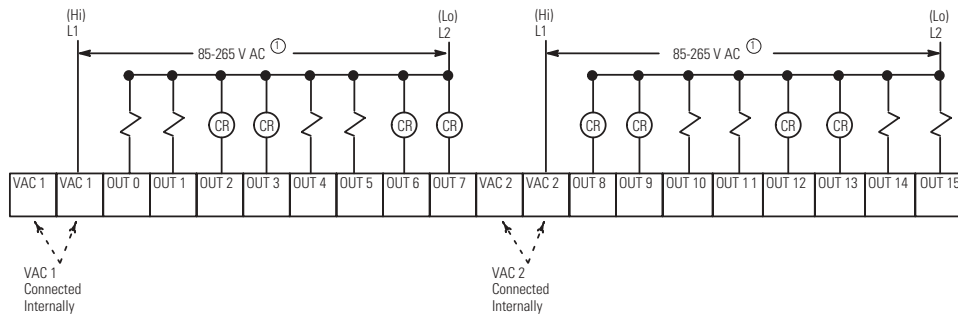
1. The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.
2. 24 VDC, 200mA user power is available for sensors.

**1747-L40A**



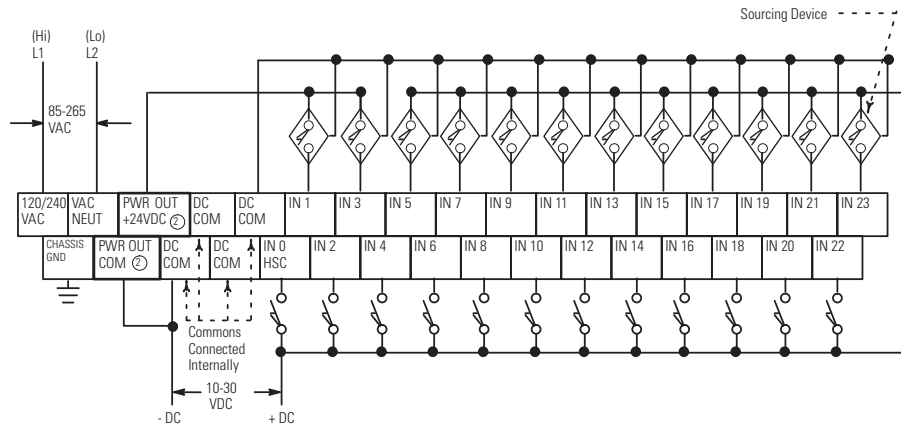
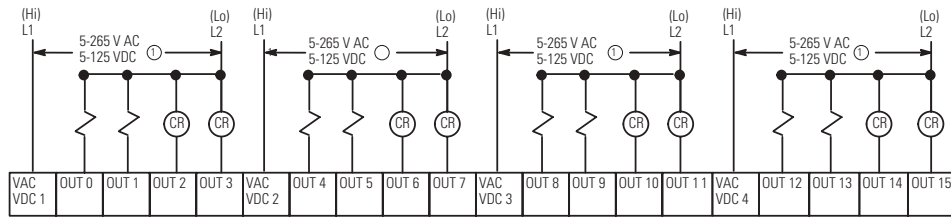
The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

**1747-L40B**



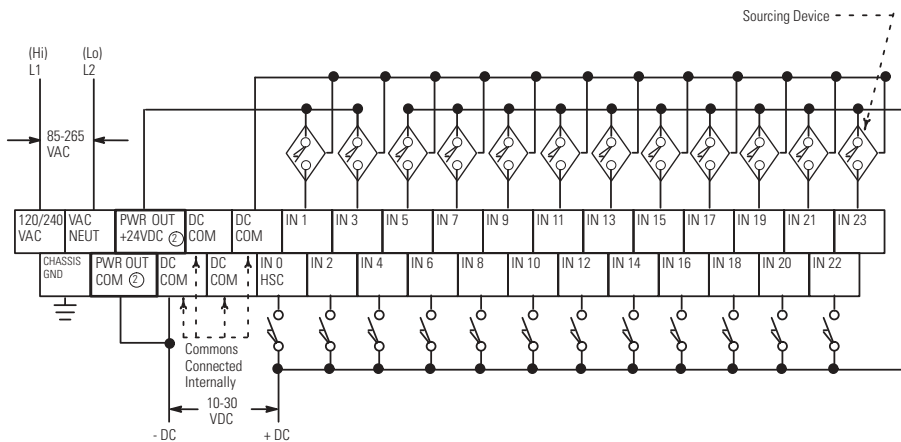
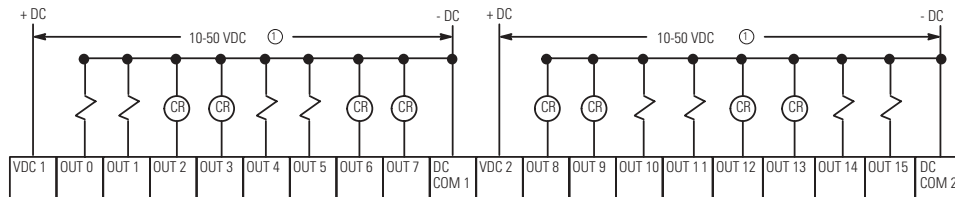
The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

**1747-L40C**



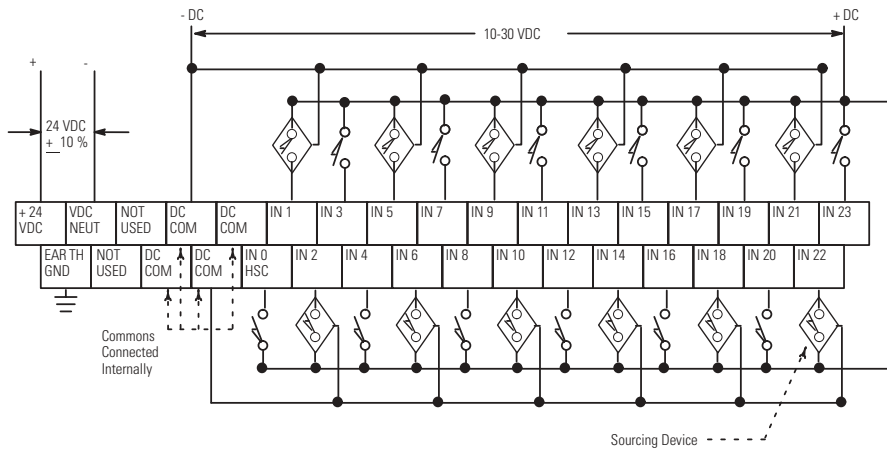
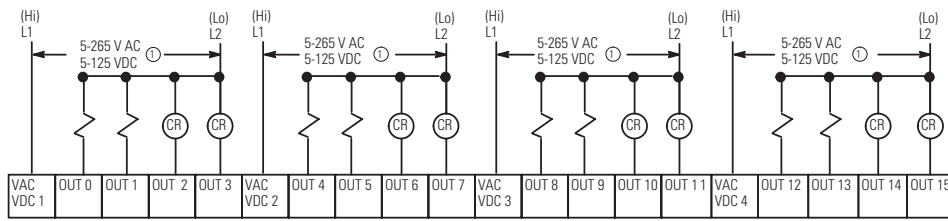
1. The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.
2. 24 VDC, 200mA user power is available for sensors.

**1747-L40E**



1. The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.
2. 24 VDC, 200mA user power is available for sensors.

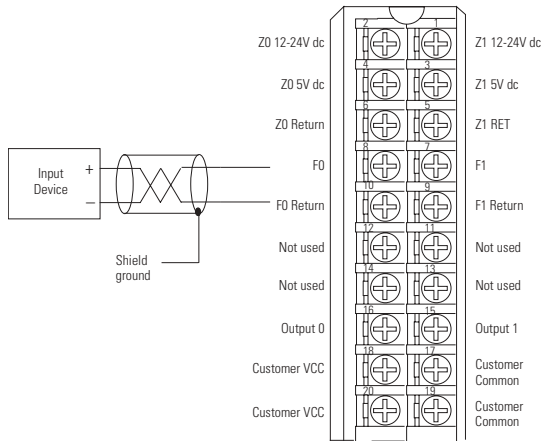
**1747-L40F**



1. The outputs are isolated in groups as shown. Therefore, different voltages can be applied to each group as the specific application requires.

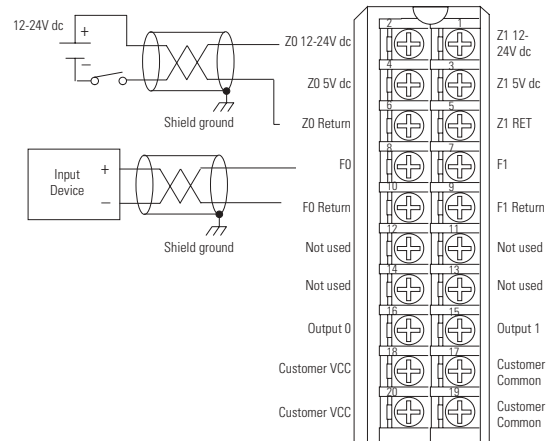
## 1756 ControlLogix I/O Modules

### 1756-CFM - Standard Flowmeter Wiring



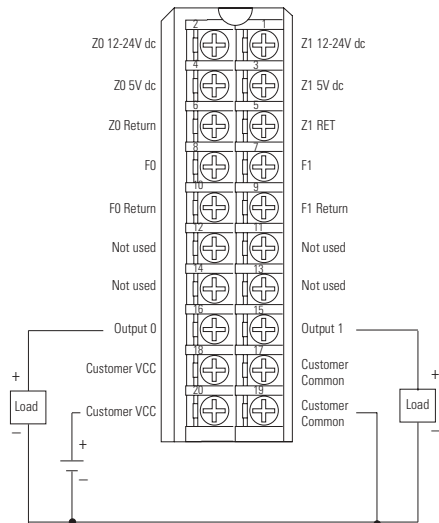
- NOTES:
1. This wiring diagram can be used in applications with 50mV (magnetic pickup), 1.3V (TTL), and 4V (preamp level) thresholds. You must use RSLogix 5000 to choose the appropriate threshold level for your application.
  2. Do not connect more than 2 wires to any single terminal.

### 1756-CFM - Standard Prover/Detector Wiring



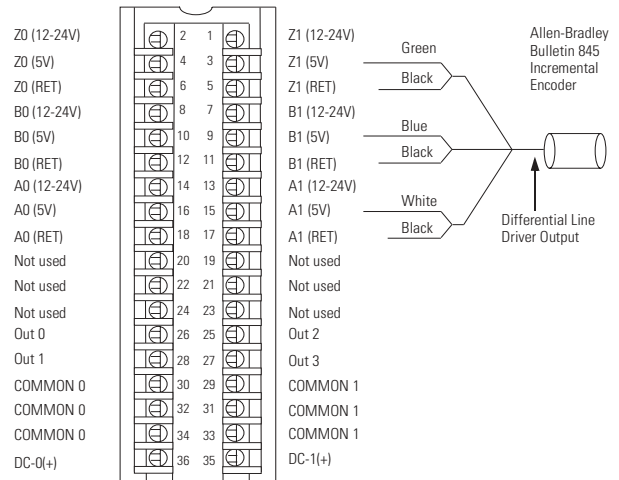
- NOTE:
1. The wiring example above shows a 12-24V dc standard prover connected to the module. If you use a 5V dc standard prover, make sure the positive wire is connected to the 5V terminal (e.g. Z0 5V dc).
  2. Do not connect more than 2 wires to any terminal.

### 1756-CFM - Standard Output



- NOTES:
1. If separate power sources are used, do not exceed the specified isolation voltage.
  2. Do not connect more than 2 wires to any single terminal.

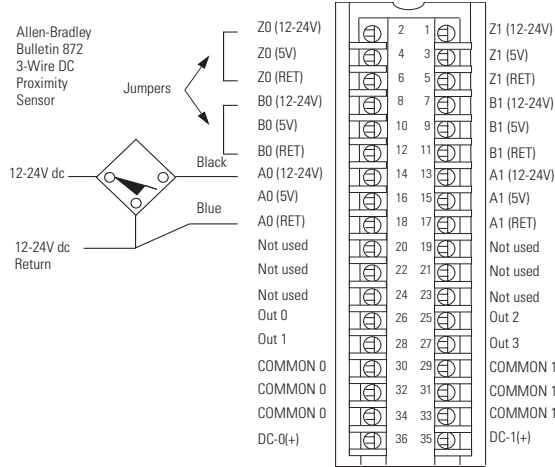
### 1756-HSC - 845 Incremental Encoder



Application:	A1 Connections:	B1 Connections:	Z1 Connections:
Differential Line Driver Output (40mA)	White - A1 (5V) Black of white - A1 (RET)	Blue - B1 (RET) Black of blue - B1 (5V)	Green - Z1 (5V) Black of green - Z1 (RET)

NOTE: Do not connect more than 2 wires to any single terminal.

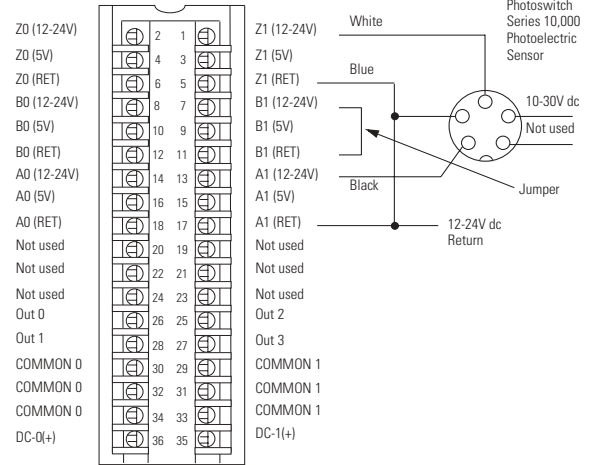
### 1756-HSC - 872 3-Wire DC Proximity Sensor



Application:	A0 Connections:	B0 Connections:	Z0 Connections:
PNP (Sourcing) N.O.	Black - A0 (12-24V) Blue, PS(-) - A0 (RET)	Jumper B0 (12-24V) to B0 (RET)	Jumper Z0 (12-24V) to Z0 (RET)

NOTE: Do not connect more than 2 wires to any single terminal.

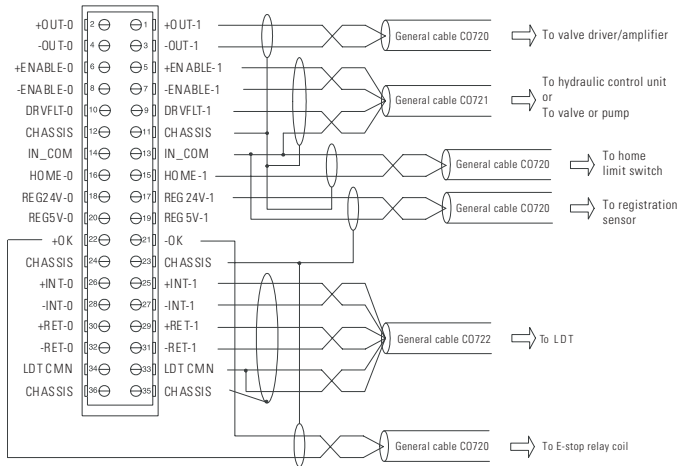
### 1756-HSC - Photoswitch Series 10,000 Photoelectric Sensor



Application:	A1 Connections:	B1 Connections:	Z1 Connections:
Any	Black - A1 (12-24V) Blue - A1 (RET)	Jumper B1 (12-24V) to B1 (RET)	White - Z1 (12-24V) Blue - Z1 (RET)

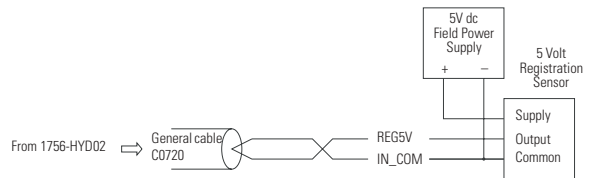
NOTE: Do not connect more than 2 wires to any single terminal.

### 1756-HYD02

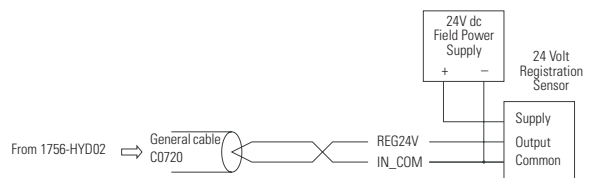


NOTES: 1. This is a general wiring example illustrating Axis 1 wiring only. Other configurations are possible with Axis wiring identical to Axis 1.  
2. Make sure that any transducer connected to the 1756-HYD02 module uses an external interrogation signal.  
3. Do not exceed the specified isolation voltage between power sources.

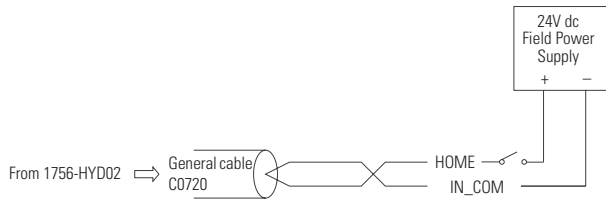
### 1756-HYD02 - Wiring 5V Sensors



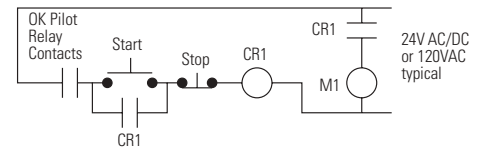
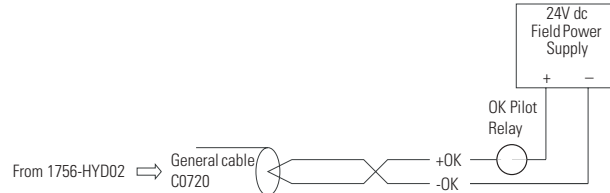
### 1756-HYD02 - Wiring 24V Sensors



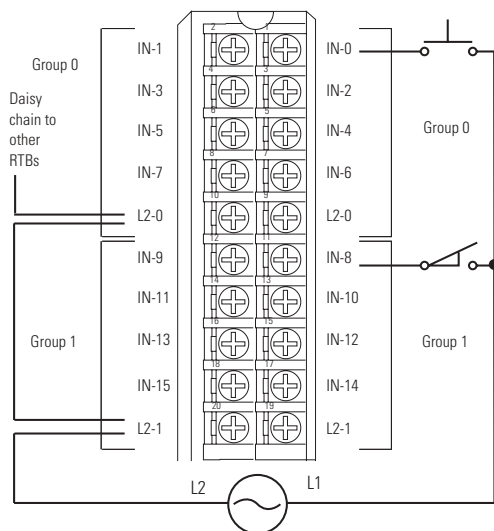
### 1756-HYD02 - Wiring Home Limit Switch



### 1756-HYD02 - Wiring OK Contacts

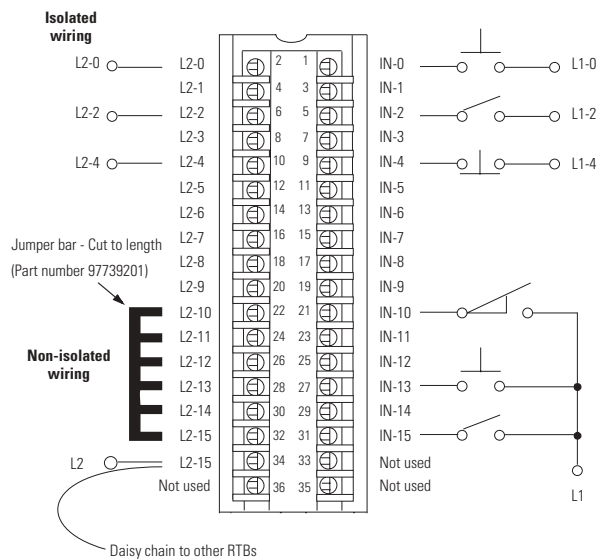


### 1756-IA16



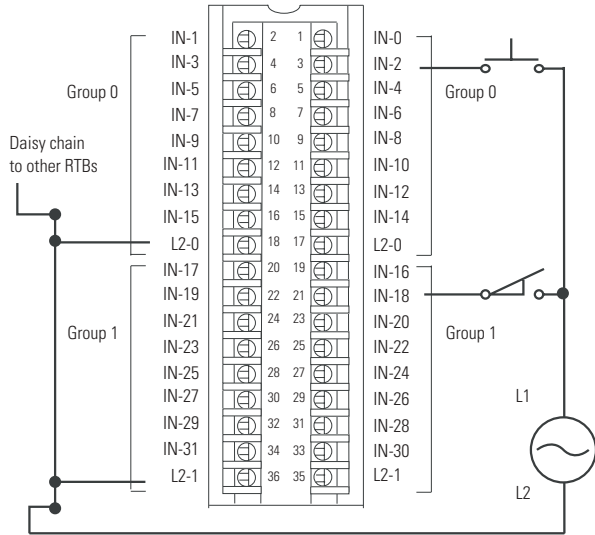
- NOTES:
1. All terminals with the same name are connected together on the module. For example, L2 can be connected to any terminal marked L2-0.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.

### 1756-IA16I



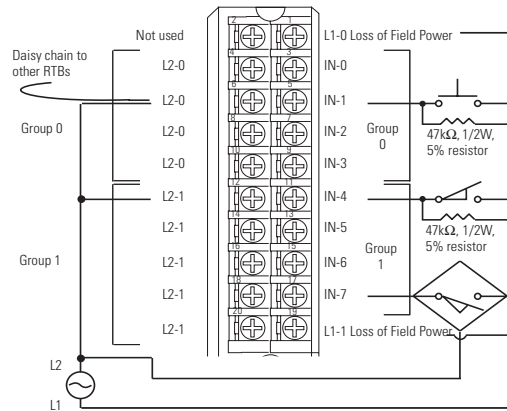
- NOTES
1. All terminals with the same name are connected together on the module. For example, L2 can be connected to either terminal marked L2-15.
  2. When you use the second L2-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.

**1756-IA32**



- NOTES:
1. All terminals with the same name are connected together on the module. For example, L2 can be connected to any terminal marked L2-0.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IA8D**



- NOTES:
1. All terminals with the same name are connected together on the module. For example, L2 can be connected to any terminal marked L2-0.
  2. This wiring example shows a single voltage source.
  3. When you daisy chain from a group to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

Resistors are not necessary if Wire Off diagnostic is not used.

**Recommended Values**

P/S Voltage	R <sub>LEAK</sub> , 1/2W, 5%
100V ac +/-10%	43kΩ
110V ac +/-10%	47kΩ
115V ac +/-10%	47kΩ
120V ac +/-10%	51kΩ

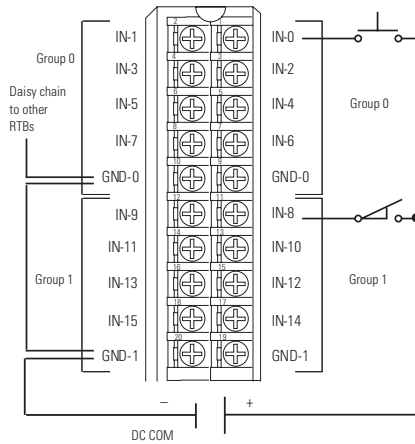
**To Determine Leakage Resistor**

(P/S = Field side power supply)

$$R_{LEAK} \text{Maximum} = (P/S \text{ Voltage} - 19V \text{ ac}) / 1.5mA$$

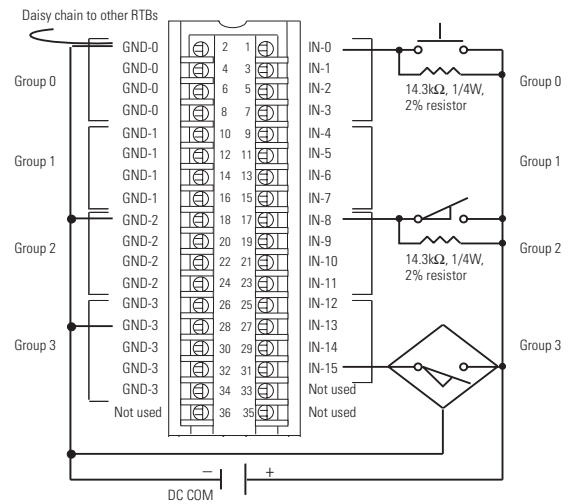
$$R_{LEAK} \text{Minimum} = (P/S \text{ Voltage} - 20V \text{ ac}) / 2.5mA$$

**1756-IB16**



- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC COM can be connected to either terminal marked GND-0.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IB16D**



- NOTES:
1. All terminals with the same name are connected together on the module.
  2. This wiring example shows a single voltage source.
  3. When you daisy chain from a group to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  4. Resistors are not necessary if Wire Off diagnostic is not used.
  5. If separate power sources are used, do not exceed the specified isolation voltage.

**To Determine Leakage Resistor**

(P/S = Field side power supply)

$$R_{LEAK} \text{Maximum} = (P/S \text{ Voltage} - 4.6V \text{ dc}) / 1.21mA$$

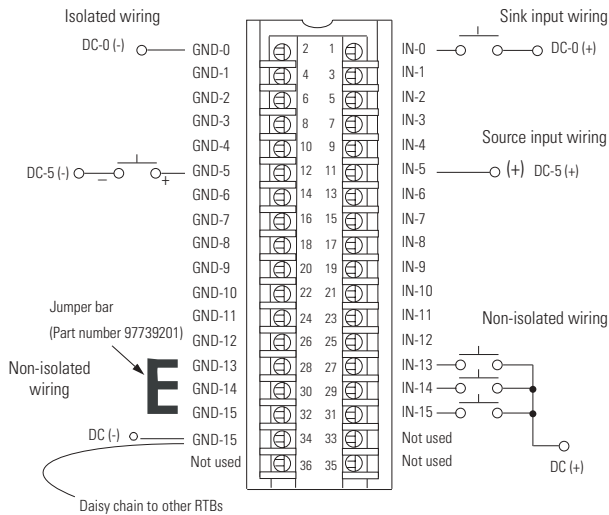
$$R_{LEAK} \text{Minimum} = (P/S \text{ Voltage} - 5V \text{ dc}) / 1.5mA$$

**Recommended Values**

P/S Voltage	R <sub>LEAK</sub> , 1/4W, 2%
12V dc +/-5%	5.23kΩ
24V dc +/-5%	14.3kΩ

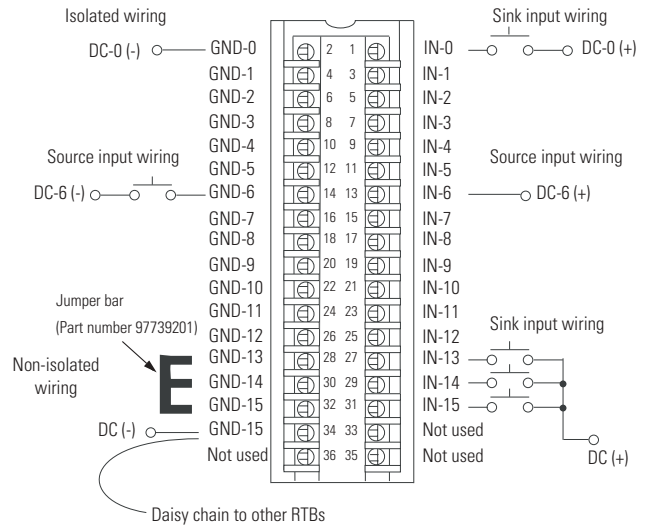


**1756-IB16I**



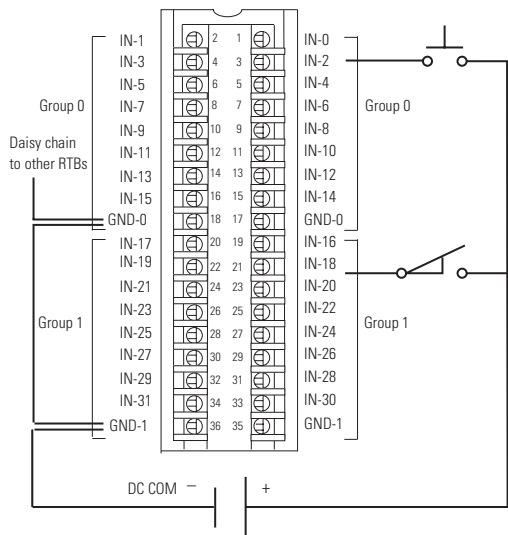
- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC (-) can be connected to either terminal marked GND-15.
  2. When you use the second GND-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.
  3. Each input can be wired in a sink or source configuration, as shown above.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IB16ISOE**



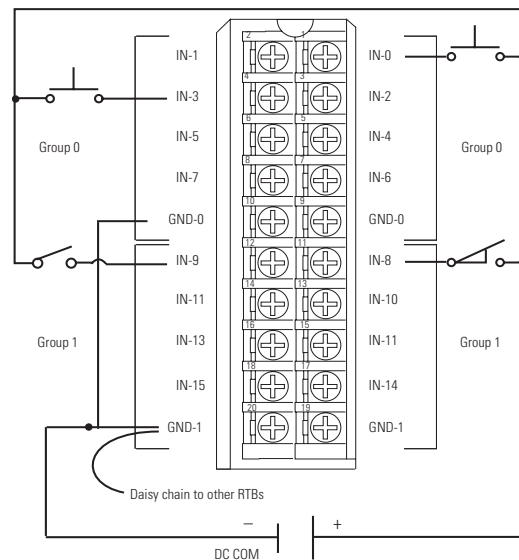
- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC (-) can be connected to either terminal marked GND-15.
  2. When you use the second GND-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above.
  3. If separate power sources are used, do not exceed the specified isolation voltage.
  4. Do not connect more than 2 wires to any single terminal.
  5. The jumper bar is part number 97739201; use this number to order additional bars.

**1756-IB32/B**



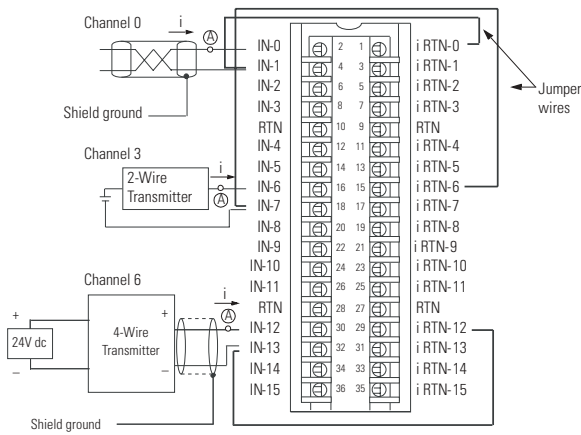
- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC COM can be connected to either terminal marked GND-1.
  2. When you daisy chain to other RTBs, always connect the daisy chain as shown above. Do not connect more than 2 wires to any single terminal at any time.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IC16**



- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC COM can be connected to any terminal marked GND-1.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

### 1756-IF16 – Differential Current Applications



**NOTES:**

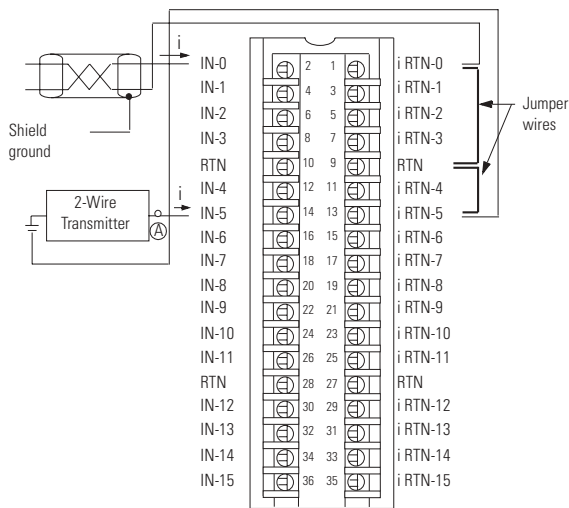
1. Use the table below when wiring your module in differential current mode.

This channel:	Uses these terminals:	This channel:	Uses these terminals:
Channel 0	IN-0 (+), IN-1 (-) & i RTN-0	Channel 4	IN-8 (+), IN-9 (-) & i RTN-8
Channel 1	IN-2 (+), IN-3 (-) & i RTN-2	Channel 5	IN-10 (+), IN-11 (-) & i RTN-10
Channel 2	IN-4 (+), IN-5 (-) & i RTN-4	Channel 6	IN-12 (+), IN-13 (-) & i RTN-12
Channel 3	IN-6 (+), IN-7 (-) & i RTN-6	Channel 7	IN-14 (+), IN-15 (-) & i RTN-14

- All terminals marked RTN are connected internally.
- A 249  $\Omega$  current loop resistor is located between IN-x and i RTN-x terminals.
- If multiple (+) or multiple (-) terminals are tied together, connect that tie point to a RTN terminal to maintain the module's accuracy.
- Place additional loop devices (e.g. strip chart recorders, etc.) at the A location in the current loop.
- Do not connect more than two wires to any single terminal.

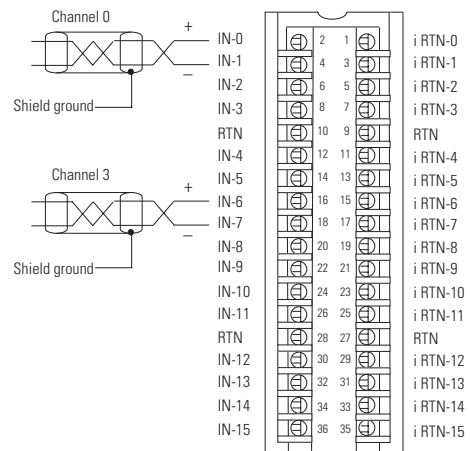
**IMPORTANT:** When operating in 4 channel, high speed mode, only use channels 0, 2, 4 and 6.

### 1756-IF16 – Single-Ended Current Applications



- NOTES:**
- All terminals marked RTN are connected internally.
  - A 249  $\Omega$  current loop resistor is located between IN-x and i RTN-x terminals.
  - For current applications, all terminals marked i RTN must be wired to terminals marked RTN.
  - Place additional loop devices (e.g. strip chart recorders, etc.) at the A location.
  - Do not connect more than 2 wires to any single terminal.

### 1756-IF16 – Differential Voltage Applications

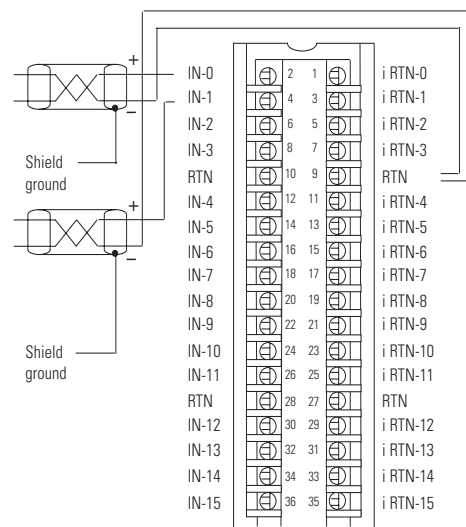


**NOTES:** 1. Use the following chart when wiring your module in differential mode

This channel:	Uses these terminals:	This channel:	Uses these terminals:
Channel 0	IN-0 (+) & IN-1 (-)	Channel 4	IN-8 (+) & IN-9 (-)
Channel 1	IN-2 (+) & IN-3 (-)	Channel 5	IN-10 (+) & IN-11 (-)
Channel 2	IN-4 (+) & IN-5 (-)	Channel 6	IN-12 (+) & IN-13 (-)
Channel 3	IN-6 (+) & IN-7 (-)	Channel 7	IN-14 (+) & IN-15 (-)

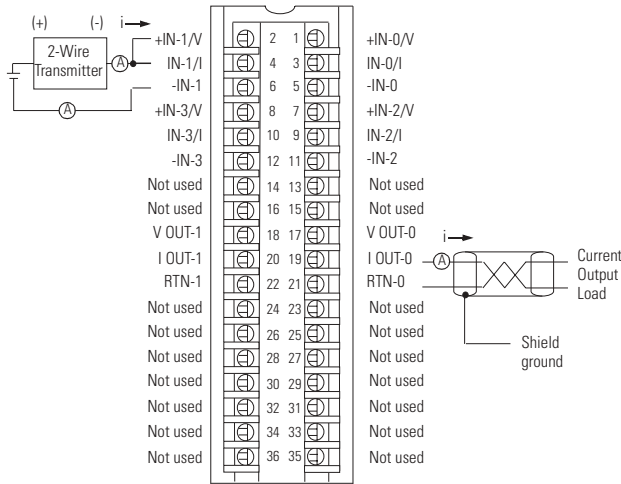
- When operating in 4 channel, high speed mode, only use channels 0, 2, 4 and 6
- All terminals marked RTN are connected internally.
- If multiple (+) or multiple (-) terminals are tied together, connect that tie point to terminal to maintain the module's accuracy.
- Terminals marked RTN and i RTN are not used for differential voltage wiring.
- Do not connect more than 2 wires to any single terminal.

### 1756-IF16 – Single-Ended Voltage Applications

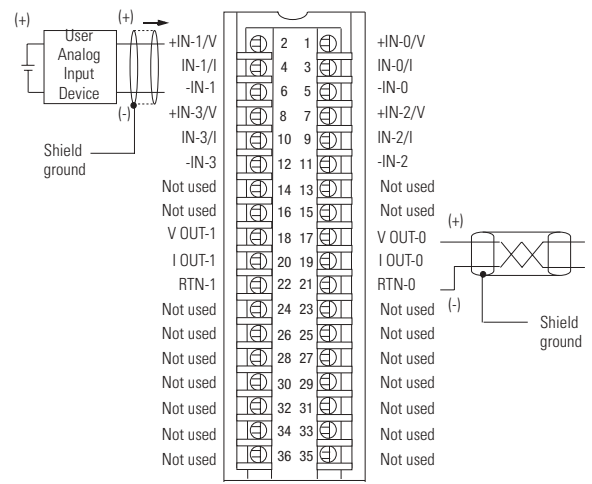


- NOTES:**
- All terminals marked RTN are connected internally.
  - Terminals marked i RTN are not used for single-ended voltage wiring.
  - Do not connect more than 2 wires to any single terminal.

**1756-IF4FXOF2F Current Mode**

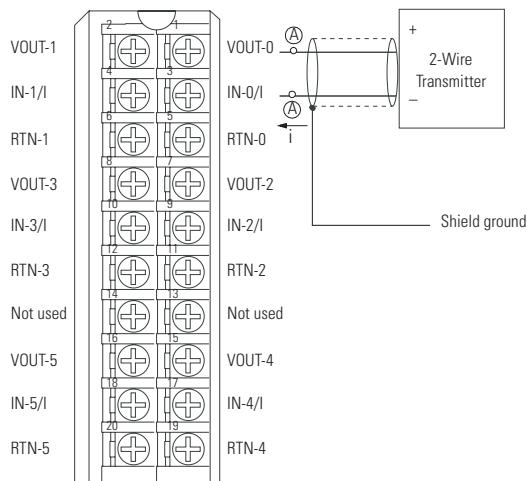


**1756-IF4FXOF2F Voltage Mode**



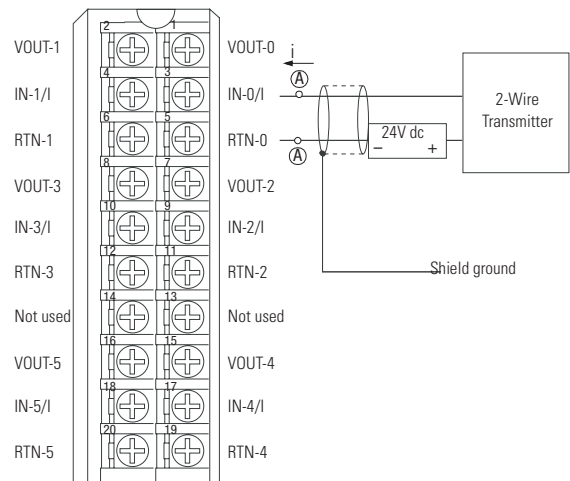
NOTE: Place additional loop devices (e.g. strip chart recorders) at any A location.

**1756-IF6CIS - 2-Wire transmitter connected to the module and the module providing 24V dc loop power**



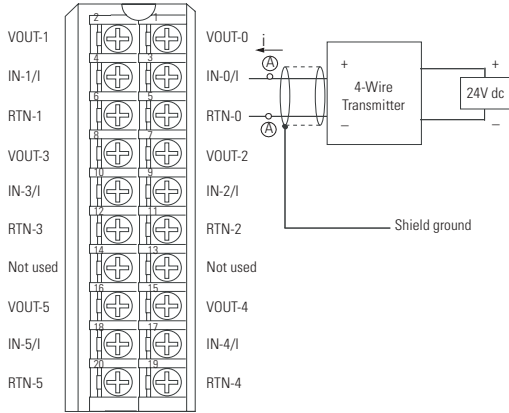
- NOTES:
1. Do not connect more than 2 wires to any single terminal.
  2. Place additional loop devices (e.g. strip chart recorders) at either A location in the current loop.

**1756-IF6CIS - 2-Wire transmitter connected to the module and an external, user-provided power supply providing 24V dc loop power**



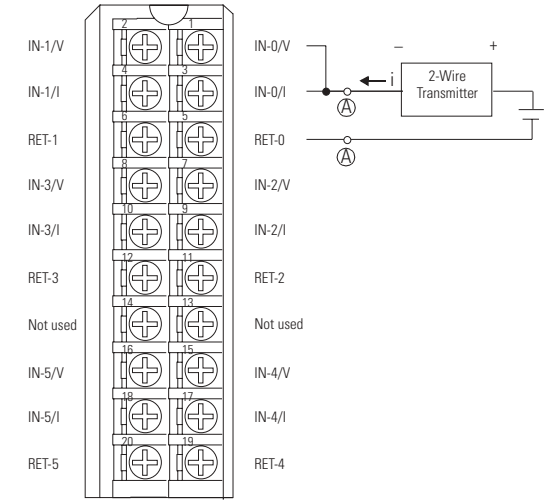
- NOTES:
1. If separate power sources are used, do not exceed the specified isolation voltage.
  2. Do not connect more than 2 wires to any single terminal.
  3. Place additional loop devices (e.g. strip chart recorders) at either A location in the current loop.

**1756-IF6CIS - 4-Wire transmitter connected to the module and an external, user-provided power supply providing 24V dc loop power**



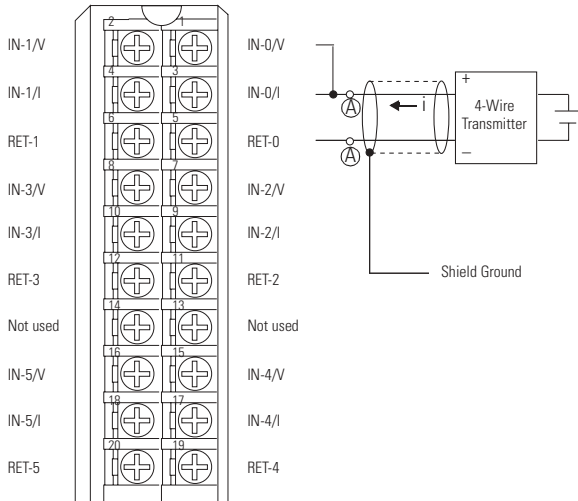
- NOTES:
1. If separate power sources are used, do not exceed the specified isolation voltage.
  2. Do not connect more than 2 wires to any single terminal.
  3. Place additional loop devices (e.g. strip chart recorders) at either A location in the current loop.

**1756-IF6I - Current Application with 2-Wire Transmitter**



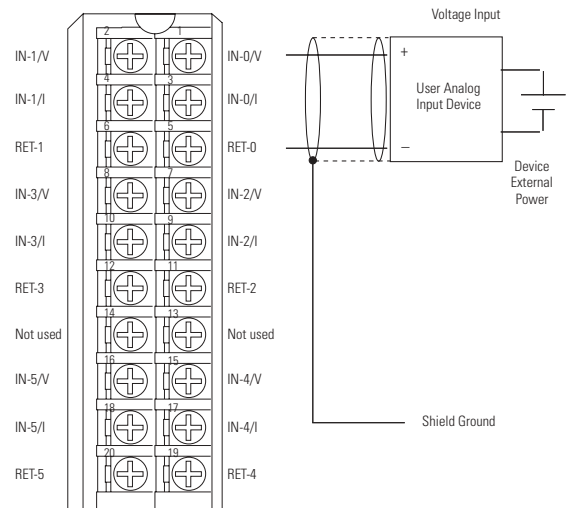
- NOTES:
1. Place additional loop devices (e.g. strip chart recorders, etc.) at either A location.
  2. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IF6I - Current Application with 4-Wire Transmitter**



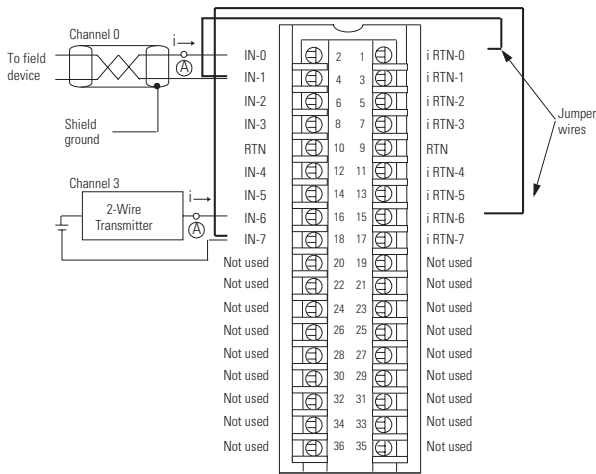
- NOTES:
1. Place additional loop devices (e.g. strip chart recorders, etc.) at either A location.
  2. Do not connect more than 2 wires to any single terminal.

**1756-IF6I - Voltage Application**



- NOTES: Do not connect more than 2 wires to any single terminal.

### 1756-IF8 – Differential Current Applications

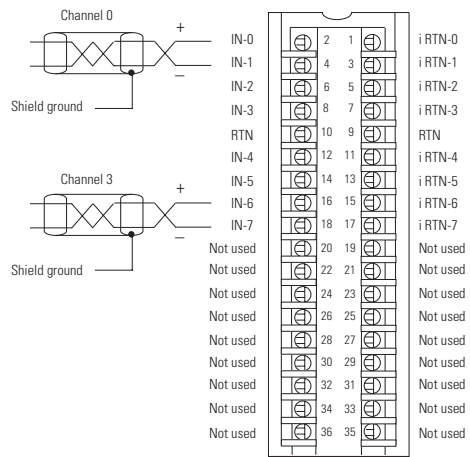


NOTES: 1. Use the following chart when wiring your module in differential mode

This channel:	Uses these terminals:	This channel:	Uses these terminals:
Channel 0	IN-0, IN-1 & iRTN-0	Channel 2	IN-4, IN-5 & iRTN-4
Channel 1	IN-2, IN-3 & iRTN-2	Channel 3	IN-6, IN-7 & iRTN-6

- When operating in 2 channel, high speed mode, only use channels 0 and 2.
- All terminals marked RTN are connected internally.
- A 249Ω current loop resistor is located between IN-x and iRTN-x terminals.
- If multiple (+) or multiple (-) terminals are tied together, connect that tie point to a RTN terminal to maintain the module's accuracy.
- Place additional loop devices (e.g. strip chart recorders, etc.) at the A location.
- If separate power sources are used, do not exceed the specified isolation voltage.
- Do not connect more than 2 wires to any single terminal.

### 1756-IF8 – Differential Voltage Applications

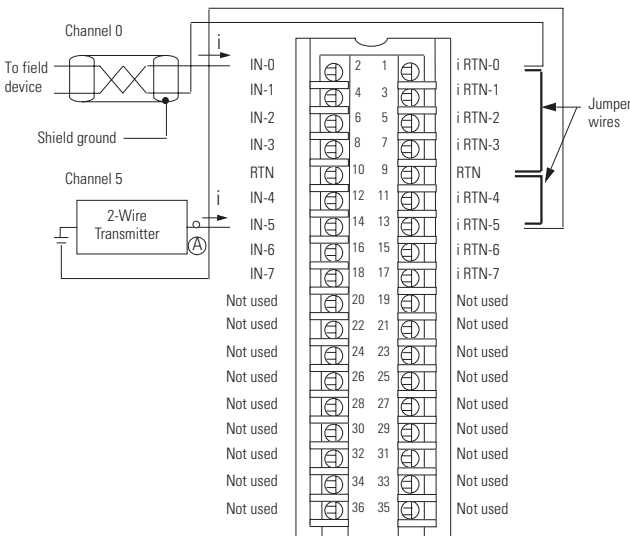


NOTES: 1. Use the following chart when wiring your module in differential mode

This channel:	Uses these terminals:	This channel:	Uses these terminals:
Channel 0	IN-0 & IN-1	Channel 2	IN-4 & IN-5
Channel 1	IN-2 & IN-3	Channel 3	IN-6 & IN-7

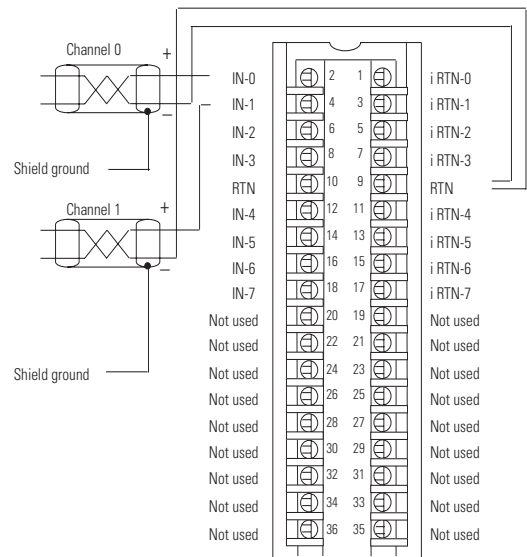
- When operating in 2 channel, high speed mode, only use channels 0 and 2.
- All terminals marked RTN are connected internally.
- If multiple (+) or multiple (-) terminals are tied together, connect that tie point to a RTN terminal to maintain the module's accuracy.
- Terminal marked RTN or iRTN are not used in differential voltage applications.
- Do not connect more than 2 wires to any single terminal.

### 1756-IF8 – Single-Ended Current Applications



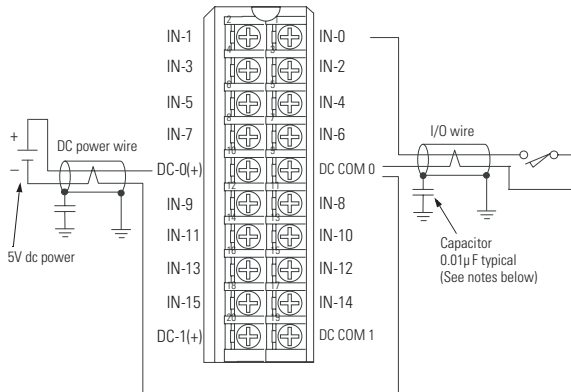
- NOTES: 1. All terminals marked RTN are connected internally.
- For current applications, all terminals marked iRTN must be wired to terminals marked RTN.
  - A 249Ω current loop resistor is located between IN-x and iRTN-x terminals.
  - Place additional loop devices (e.g. strip chart recorders, etc.) at the A location.
  - Do not connect more than 2 wires to any single terminal.

### 1756-IF8 – Single-Ended Voltage Applications



- NOTES: 1. All terminals marked RTN are connected internally.
- Terminals marked iRTN are not used for single-ended voltage wiring.
  - Do not connect more than 2 wires to any single terminal.

**1756-IG16**



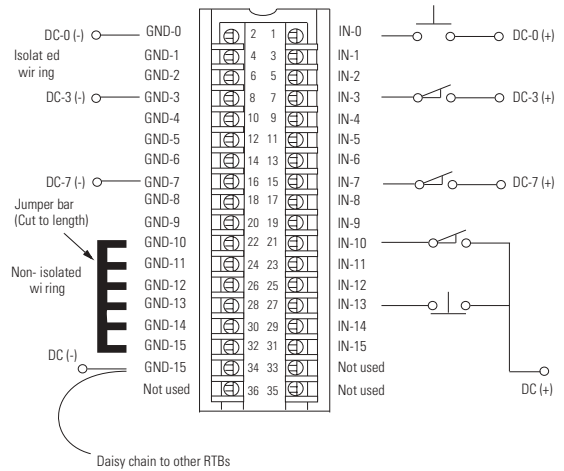
**GENERAL NOTES:**

1. We recommend you use Belden M 8761 cable where shielded cables are shown.
2. Do not connect more than two wires to any single terminal.

**CE REQUIREMENT NOTES:**

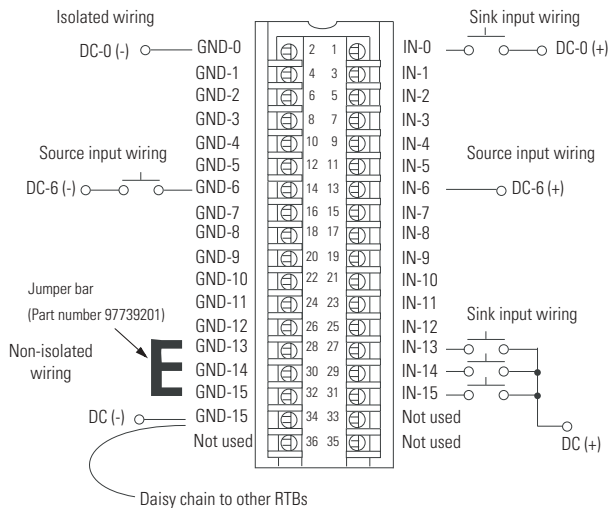
1. DC power wire and I/O wire should not exceed 10m (30ft) in length.
2. The 0.01µF capacitors shown above must be rated for 2000V dc.

**1756-IH16I**



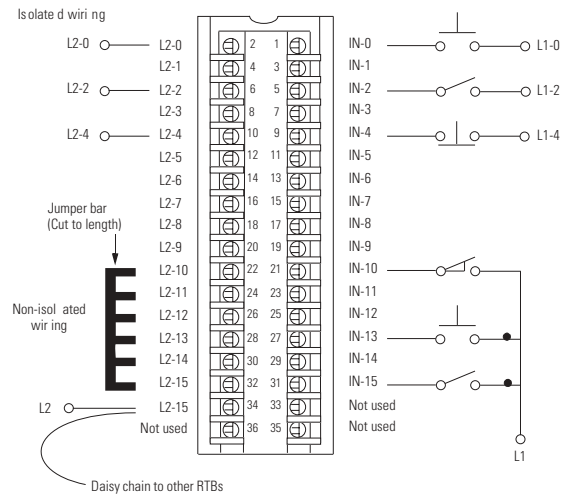
- NOTES:**
1. All terminals with the same name are connected together on the module. For example, DC (-) can be connected to either terminal marked GND-15.
  2. When you use the second GND-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.
  3. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IH16ISOE**



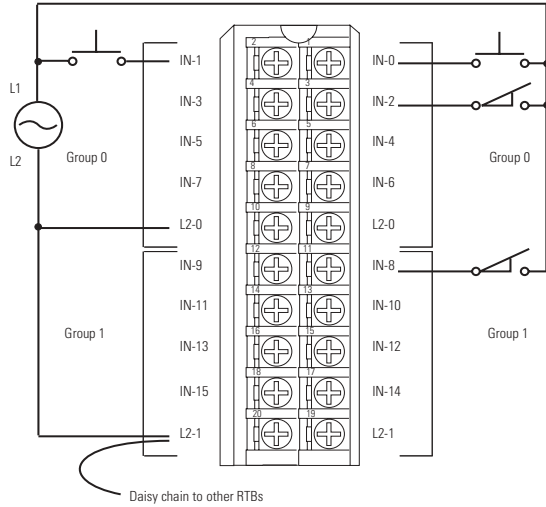
- NOTES:**
1. All terminals with the same name are connected together on the module. For example, DC (-) can be connected to either terminal marked GND-15.
  2. When you use the second GND-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above.
  3. If separate power sources are used, do not exceed the specified isolation voltage.
  4. Do not connect more than 2 wires to any single terminal.
  5. The jumper bar is part number 97739201; use this number to order additional bars.

**1756-IM16I**



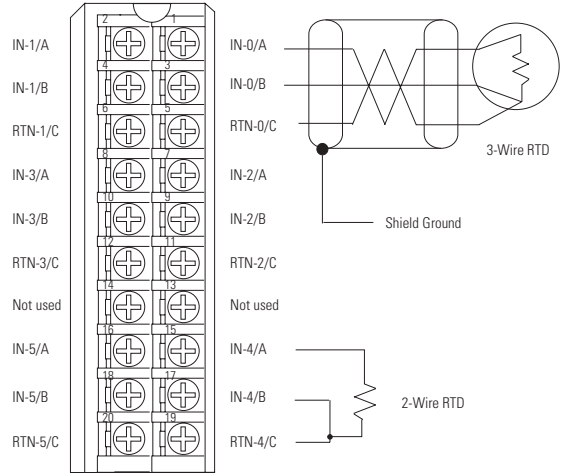
- NOTES:**
1. All terminals with the same name are connected together on the module. For example, L2 can be connected to either terminal marked L2-15.
  2. When you use the second L2-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.
  3. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IN16**



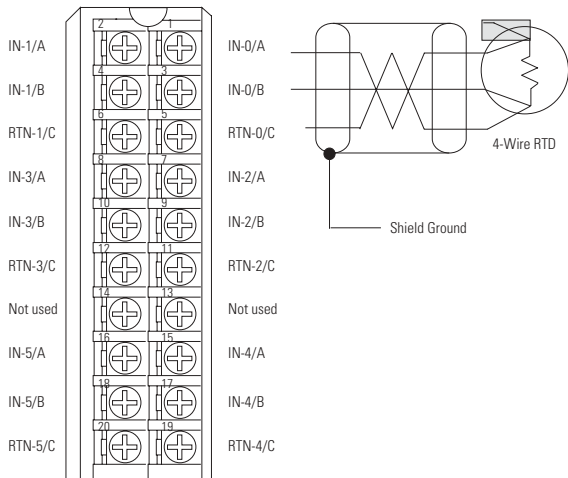
- NOTES:
1. All terminals with the same name are connected together on the module. For example, L2 can be connected to any terminal marked L2-0.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.
  5. Do not connect more than 2 wires to any single terminal.

**1756-IR6I – 2 or 3-Wire RTD**



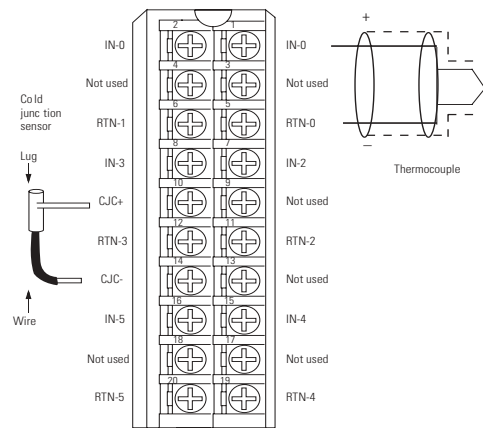
- NOTES:
1. For 2-wire resistor applications, including calibration, make sure IN-x/B and RTN-x/C are shorted together. The example above shows IN-4/B and RTN-4/C shorted together.
  2. Do not connect more than 2 wires to any single terminal.

**1756-IR6I – 4-Wire RTD**



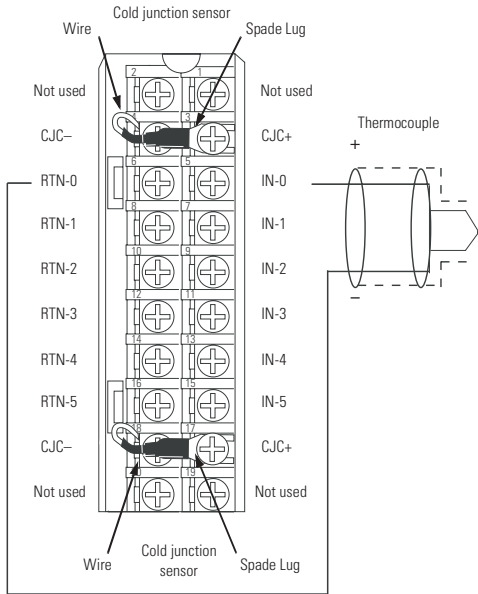
- NOTES:
1. Wiring is exactly the same as the 3-wire RTD with one wire left open.
  2. Do not connect more than 2 wires to any single terminal.

**1756-IT6I**



- NOTES:
1. If separate power sources are used, do not exceed the specified isolation voltage.
  2. Do not connect more than 2 wires to any single terminal.
  3. The part number for the cold junction sensor used on the 1756-IT6I module is 94238301.

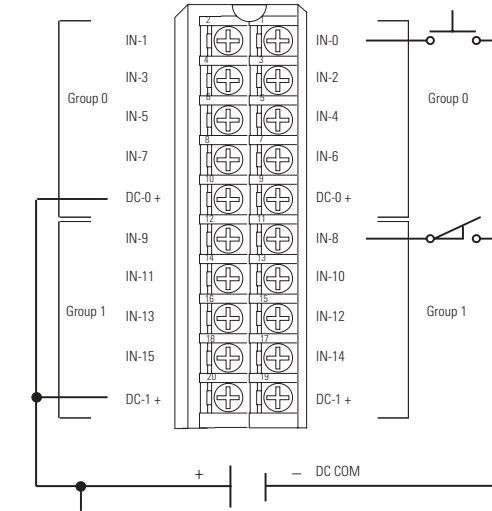
**1756-IT612**



**NOTES:**

1. Do not connect more than 2 wires to any single terminal.
2. The part number for the cold junction sensor used on the 1756-IT612 module is 94286501.

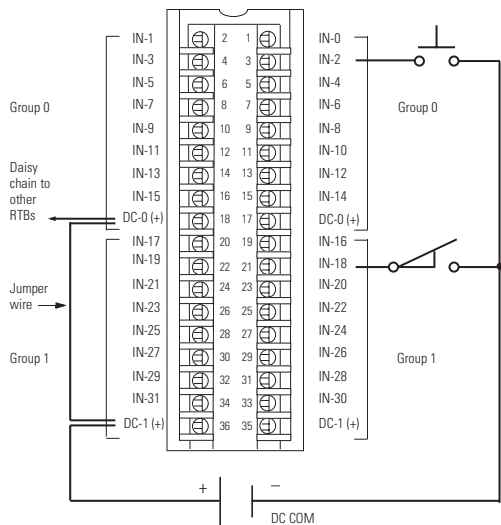
**1756-IV16**



Daisy chain to other RTBs

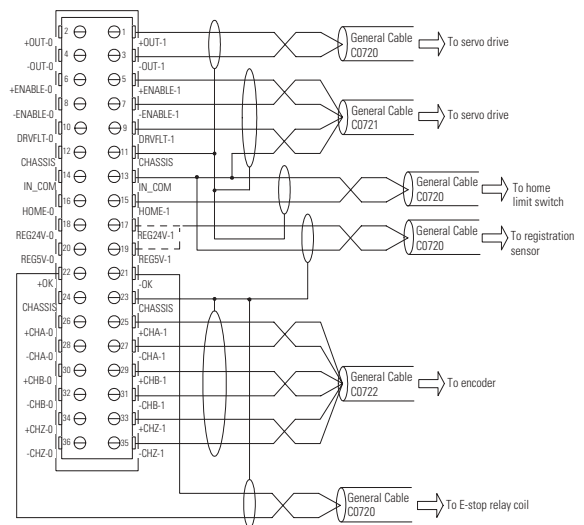
- NOTES:**
1. All terminals with the same name are connected together on the module. For example, DC (+) can be connected to either terminal marked DC-1+. If you are daisy chain wiring from one of these terminals to other RTBs, only connect wiring to one terminal.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-IV32**



- NOTES:**
1. All terminals with the same name are connected together on the module. For example, DC (+) can be connected to either terminal marked DC-1 (+).
  2. Do not physically connect more than two wires to a single RTB terminal. When jumpering I/O groups together and daisy chain wiring to adjacent modules, follow the wiring method shown above.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

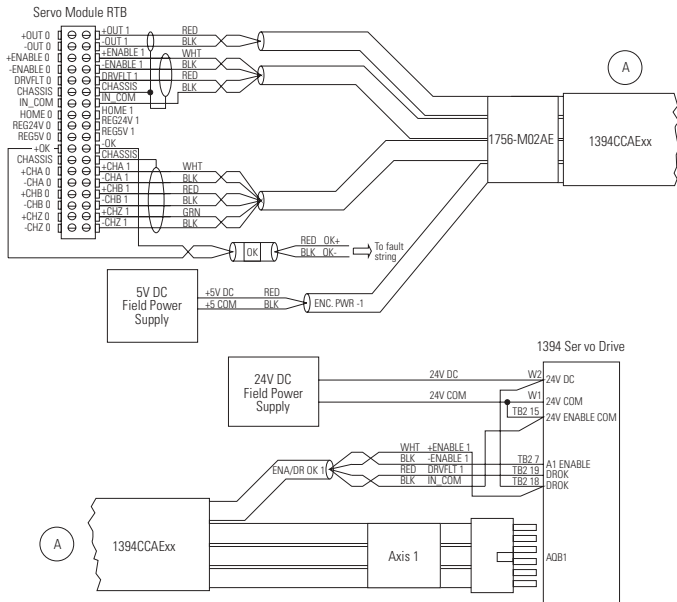
**1756-M02AE – Wiring to a Servo Module RTB**



This is a general wiring example illustrating Axis 1 wiring only. Other configurations are possible with Axis 0 wiring identical to Axis 1.

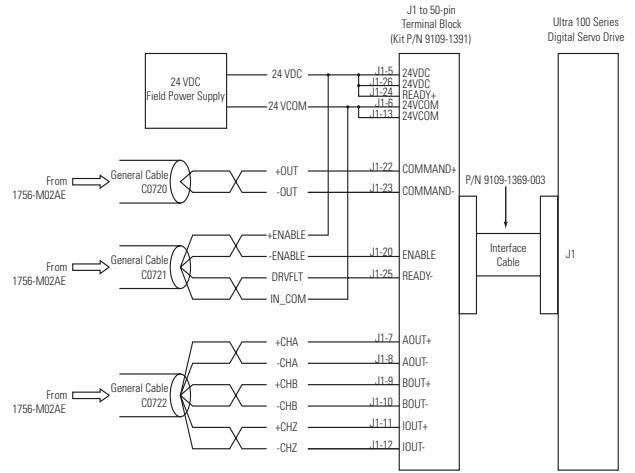


**1756-M02AE – Wiring to 1394 Servo Drive (in Torque Mode only)**



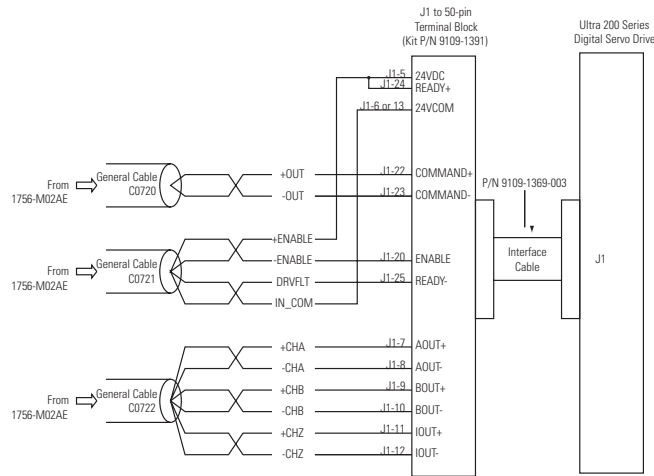
- NOTES:
1. The wiring diagram illustrates Axis 1 wiring only. Other configurations are possible.
  2. The 1394-CCAExx cable is wired to connect to torque command reference input pins.
  3. An external +5V power supply is required to power the encoder driver circuit of the 1394 servo drive. Because this connection is shared by all four axis encoder driver circuits, only one connection is needed to the +5V field supply.
  4. The xx in the cable number is the length of the cable. Options are 5, 10, 25 and 50 feet.

**1756-M02AE – Wiring to an Ultra 100 Series Drive**



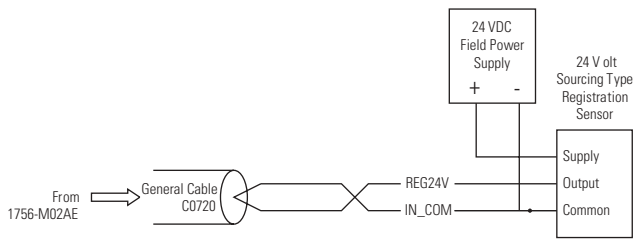
This is general wiring example only. Other configurations are possible. For more information, refer to the Ultra 100 series installation manual, publication number 1398-5.2.

**1756-M02AE – Wiring to an Ultra 200 Series Drive**



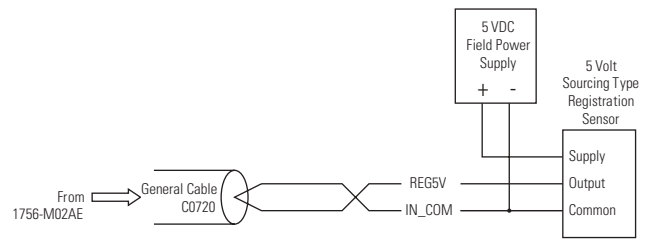
This is general wiring example only. Other configurations are possible. For more information, refer to the Ultra 200 series installation manual, publication number 1398-5.0.

**1756-M02AE – Wiring 24V Registration Sensors**

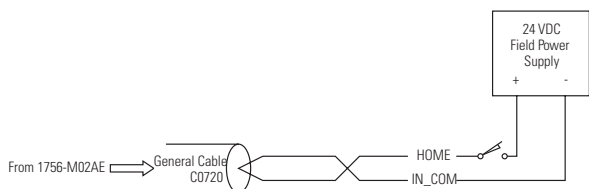


The registration inputs to the servo module support 24V or 5V registration sensors. These inputs must be wired to receive source current from the sensor. Only use sourcing type registration sensors.

**1756-M02AE – Wiring 5V Registration Sensors**

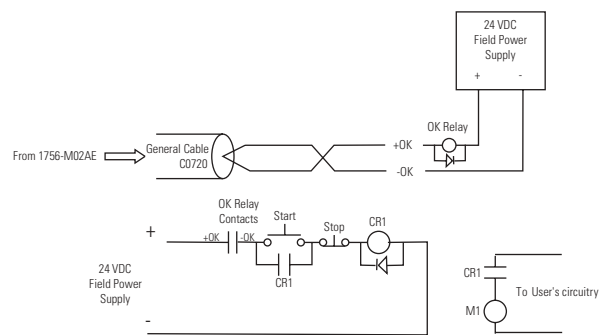


**1756-M02AE – Wiring Home Limit Switch Input**



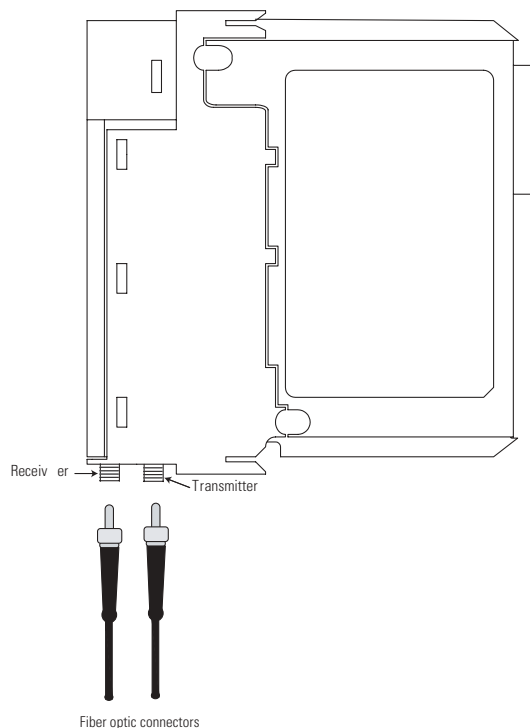
The home limit switch inputs to the servo module are designed for 24V nominal operation. These inputs should be wired for current sourcing operation.

**1756-M02AE – Wiring OK Contacts**

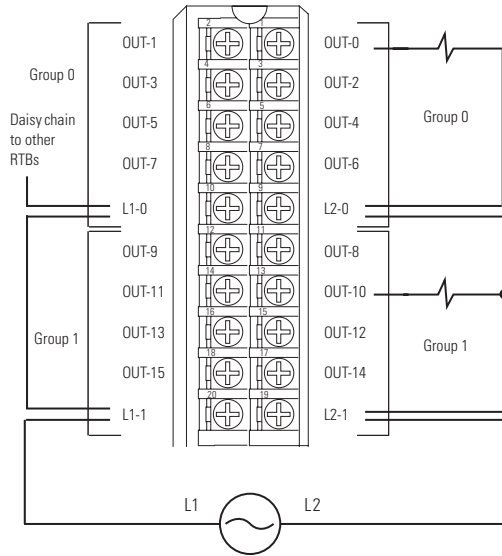


When the OK Relay is loaded with an inductive load, use a counter-EMF suppression diode across the load. The maximum rating of the OK relay contacts must not exceed 60V dc.

**1756-M08SE and 1756-M16SE**

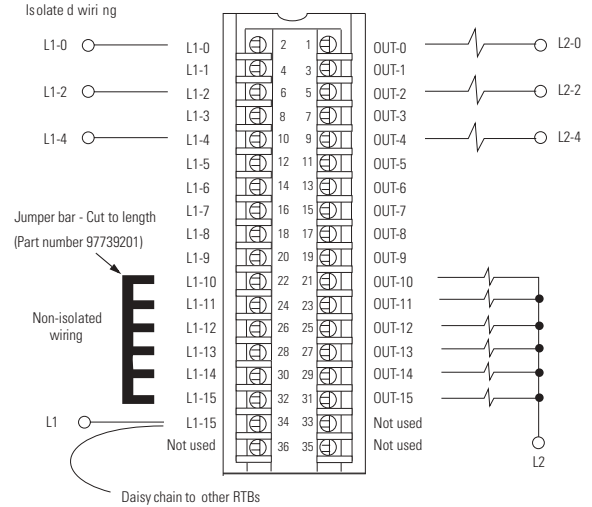


**1756-0A16**



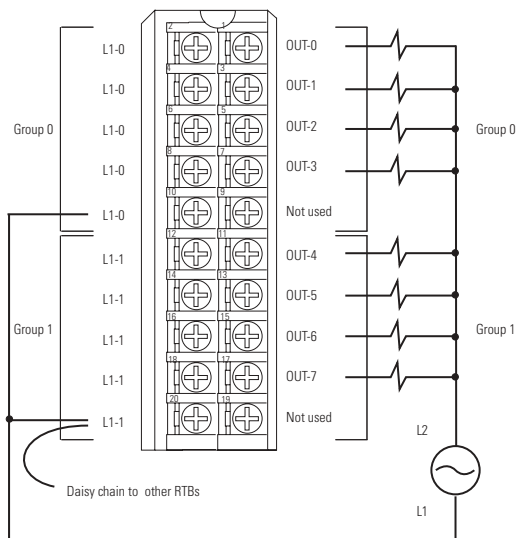
- NOTES: 1. This wiring example shows a single voltage source.  
 2. When you daisy chain from a group to other RTBs, always connect the daisy chain as shown. Do not connect more than 2 wires to any single terminal at any time.

**1756-0A16I**



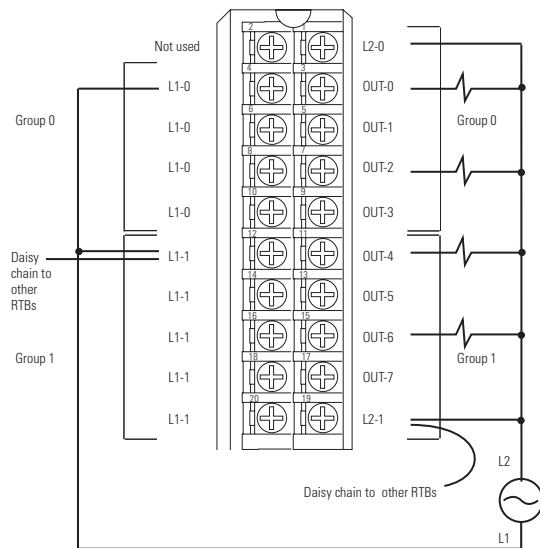
- NOTES: 1. All terminals with the same name are connected together on the module. For example, L1 can be connected to either terminal marked L1-15.  
 2. When you use the second L1-15 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.

**1756-0A8**



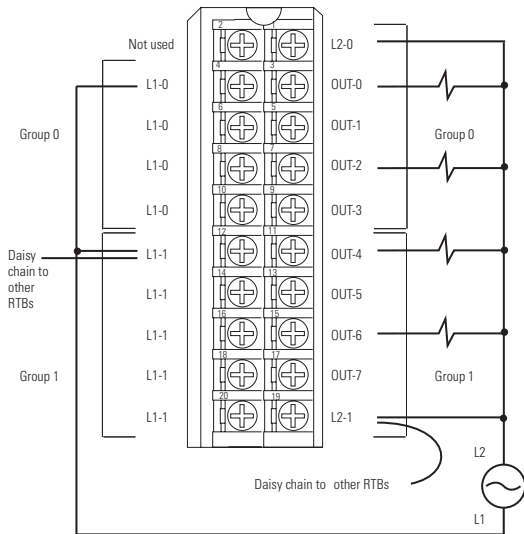
- NOTES: 1. All terminals with the same name are connected together on the module. For example, L1 can be connected to any terminal marked L1-0.  
 2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.  
 3. This wiring example shows a single voltage source.

**1756-0A8D**



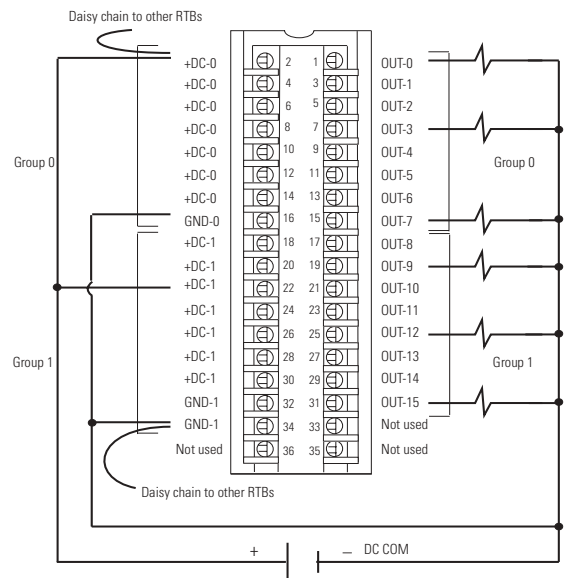
- NOTES: 1. All terminals with the same name are connected together on the module. For example, L1 can be connected to any terminal marked L1-0.  
 2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.  
 3. This wiring example shows a single voltage source.

**1756-0A8E**



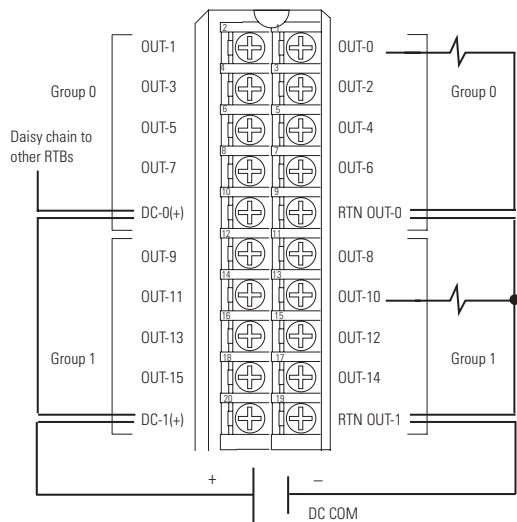
- NOTES:
1. All terminals with the same name are connected together on the module. For example, L1 can be connected to any terminal marked L1-0.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.

**1756-0B16D**



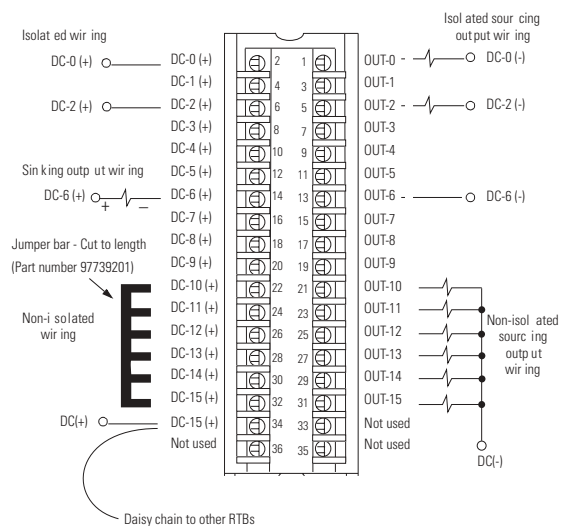
- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC COM can be connected to either terminal marked GND-1.
  2. When you daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-0B16E**



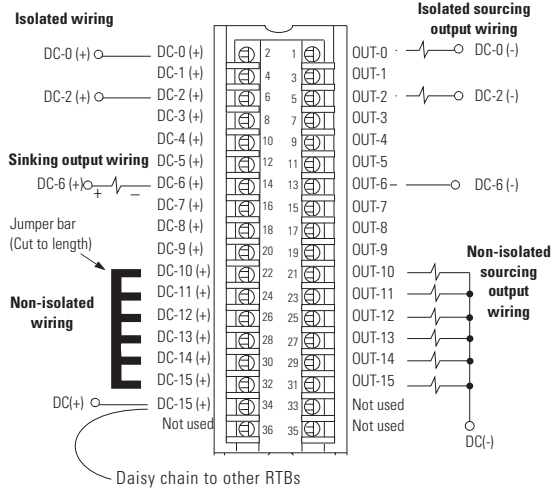
- NOTES:
1. When you daisy chain from a group to another RTB, always connect the daisy chain as shown above. Do not connect more than 2 wires to any single terminal.
  2. This wiring example shows a single voltage source.
  3. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-0B16I**



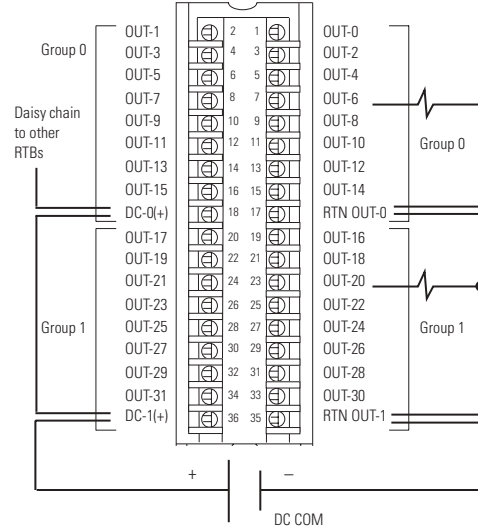
- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC (+) can be connected to either terminal marked DC-15.
  2. When you use the second DC-15 (+) terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.
  3. Outputs can be wired in a sink or source configuration as shown above.
  4. If separate power sources are used, do not exceed the specified isolation voltages.

**1756-OB16IS**



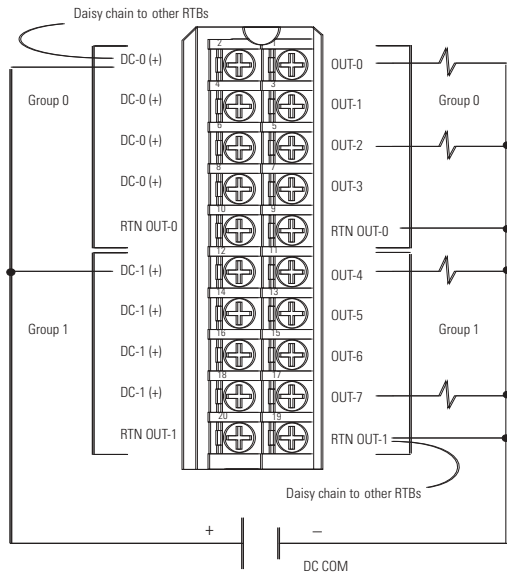
- NOTES: 1. All terminals with the same name are connected together on the module. For example, DC (+) can be connected to either terminal marked DC-15.  
 2. When you use the second DC-15 (+) terminal to daisy chain to other RTBs, always connect the daisy chain as shown in the example above. Do not connect more than 2 wires to any single terminal.  
 3. Outputs can be wired in a sink or source configuration as shown above.  
 4. If separate power sources are used, do not exceed the specified isolation voltages.

**1756-OB32**



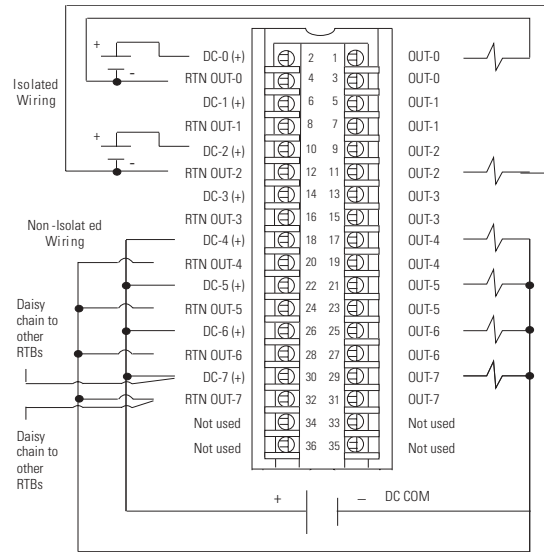
- NOTES: 1. When you daisy chain from a group to another RTB, always connect the daisy chain as shown above. Do not connect more than 2 wires to any single terminal.  
 2. This wiring example uses a single voltage source.  
 3. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-OB8**



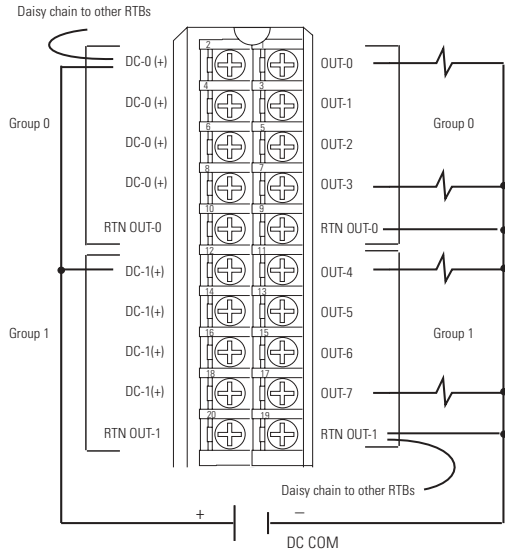
- NOTES: 1. All terminals with the same name are connected on the module. For example, DC COM can be connected to either terminal marked RTN OUT-1.  
 2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown. Do not connect more than 2 wires to any single terminal.  
 3. This wiring example shows a single voltage source.  
 4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-OB8EI**



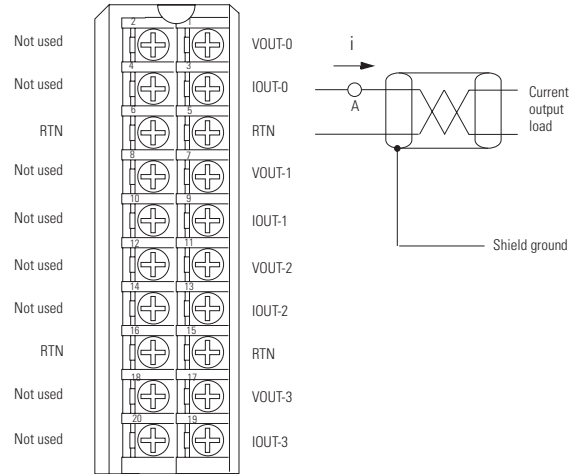
- NOTES: 1. All terminals with the same name are connected together on the module. For example, the load can be connected to either terminal marked OUT-0.  
 2. When you daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.  
 3. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-0C8**



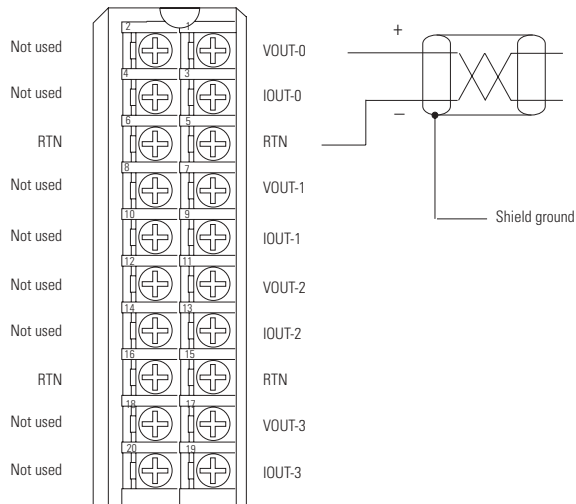
- NOTES:
1. All terminals with the same name are connected together on the module. For example, DC COM can be connected to either terminal marked RTN OUT-1.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.
  4. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-0F4 – Current Applications**



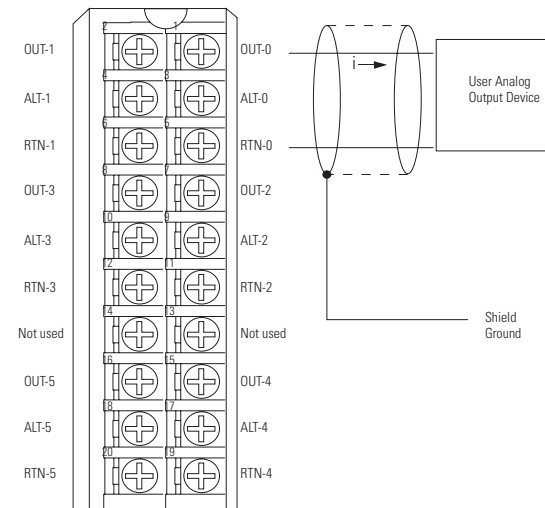
- NOTES:
1. Place additional loop devices (e.g strip chart recorders) at the A location shown above.
  2. Do not connect more than 2 wires to any single terminal.
  3. All RTN terminals are connected internally.

**1756-0F4 – Voltage Applications**



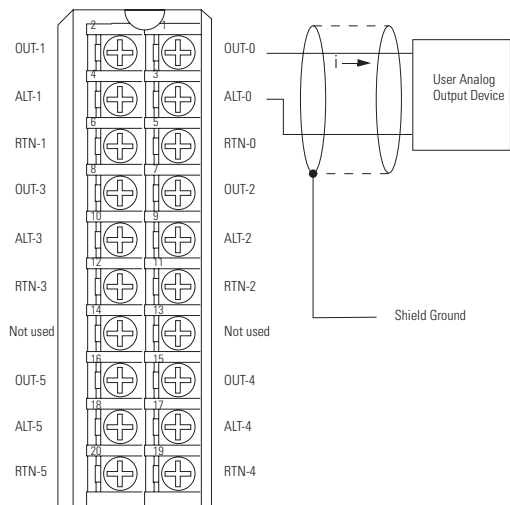
- NOTES:
1. Do not connect more than 2 wires to any single terminal.
  2. All RTN terminals are connected internally.

**1756-0F6CI – 0 - 550Ω Applications**



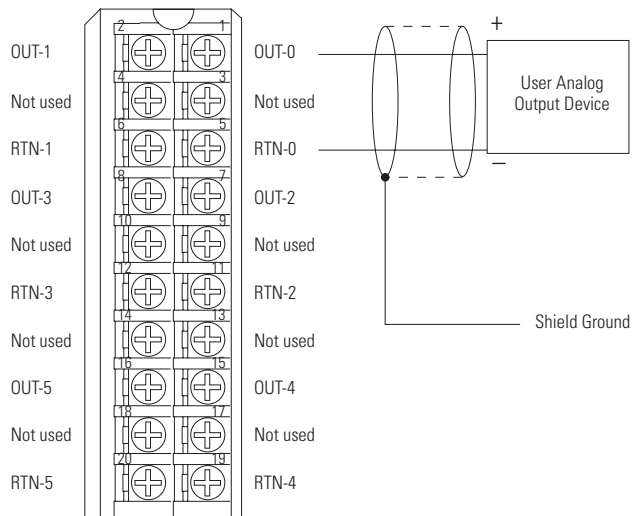
- NOTES:
1. Place additional devices anywhere in the loop.
  2. Do not connect more than 2 wires to any single terminal.

### 1756-OF6CI – 551 - 1000Ω Applications



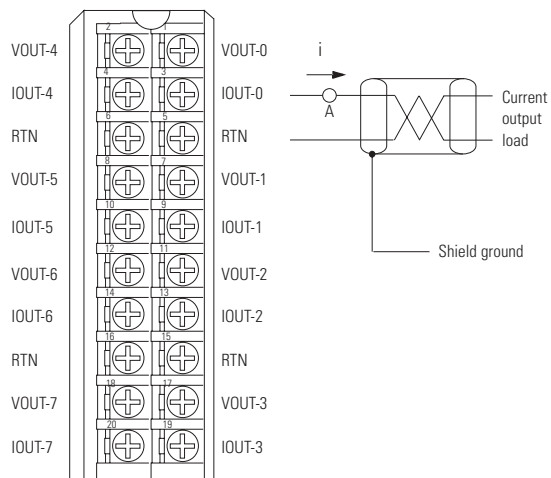
- NOTES:
1. Place additional devices anywhere in the loop.
  2. Do not connect more than 2 wires to any single terminal.

### 1756-OF6VI



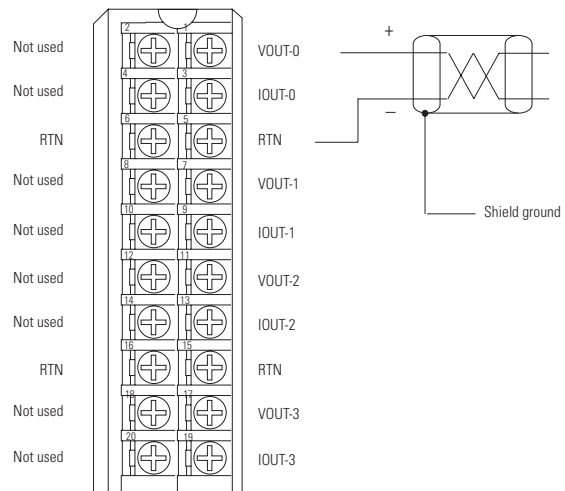
- NOTES: Do not connect more than 2 wires to any single terminal.

### 1756-OF8 – Current Applications



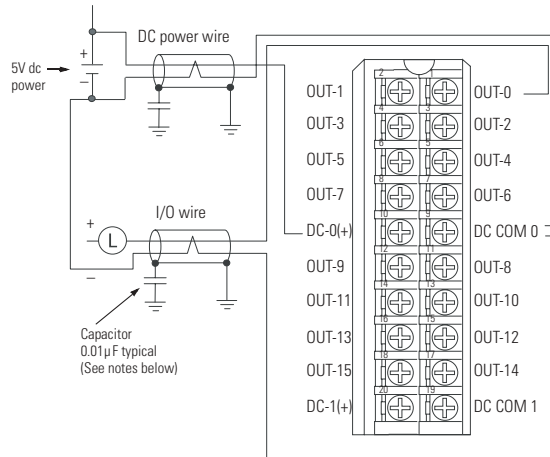
- NOTES:
1. Place additional loop devices (e.g strip chart recorders) at the A location shown above.
  2. Do not connect more than 2 wires to any single terminal.
  3. All RTN terminals are connected internally.

### 1756-OF8 – Voltage Applications



- NOTES:
1. Do not connect more than 2 wires to any single terminal.
  2. All RTN terminals are connected internally.

**1756-0G16**



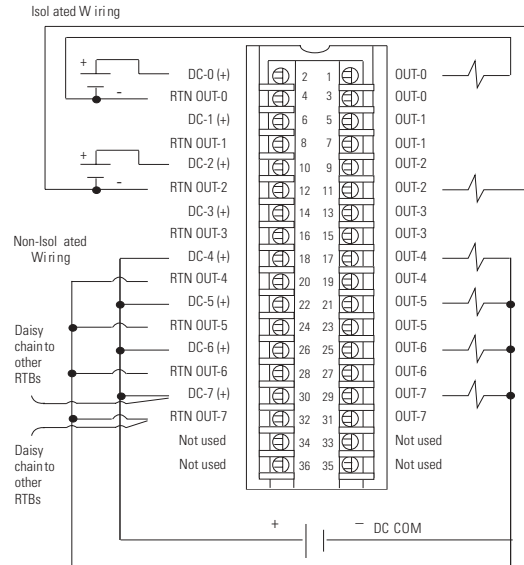
**GENERAL NOTES:**

1. We recommend you use Belden M 8761 cable where shielded cables are shown.
2. Do not connect more than two wires to any single terminal.

**CE REQUIREMENT NOTES:**

1. DC power wire and I/O wire should not exceed 10m (30ft) in length.
2. The 0.01 μF capacitors shown must be rated for 2000V dc.

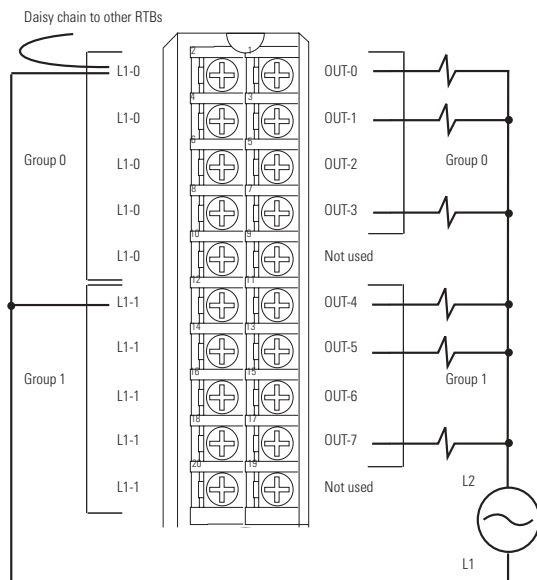
**1756-0H81**



**NOTES**

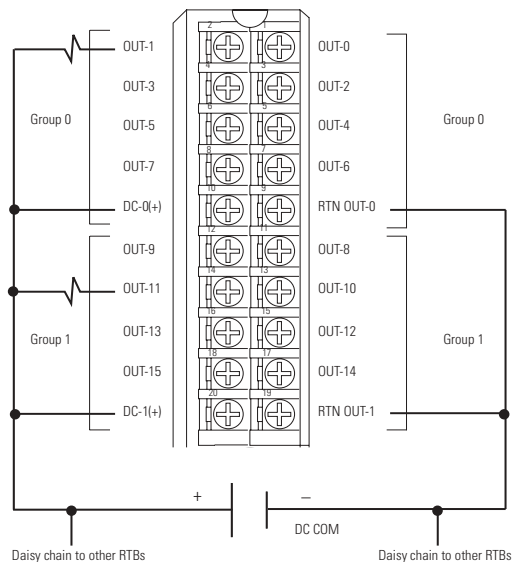
1. All terminals with the same name are connected together on the module. For example, the load can be connected to either terminal marked OUT-0.
2. When you daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.
3. If separate power sources are used, do not exceed the specified isolation voltage.

**1756-0N8**



- NOTES:**
1. All terminals with the same name are connected together on the module. For example, L1 can be connected to any terminal marked L1-1.
  2. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  3. This wiring example shows a single voltage source.

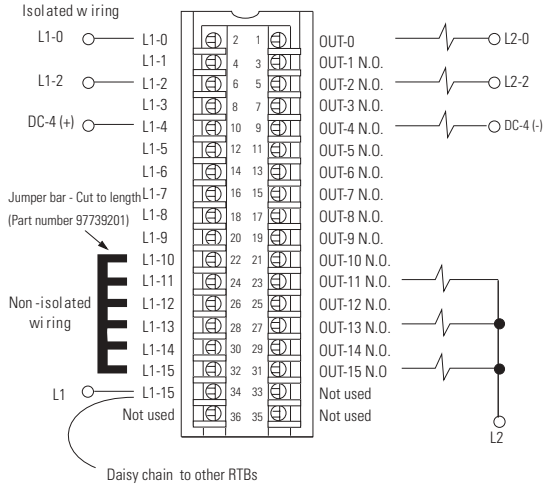
**1756-0V16E**



- NOTES:**
1. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above. Do not connect more than 2 wires to any single terminal.
  2. This wiring example shows a single voltage source.
  3. If separate power sources are used, do not exceed the specified isolation voltage.

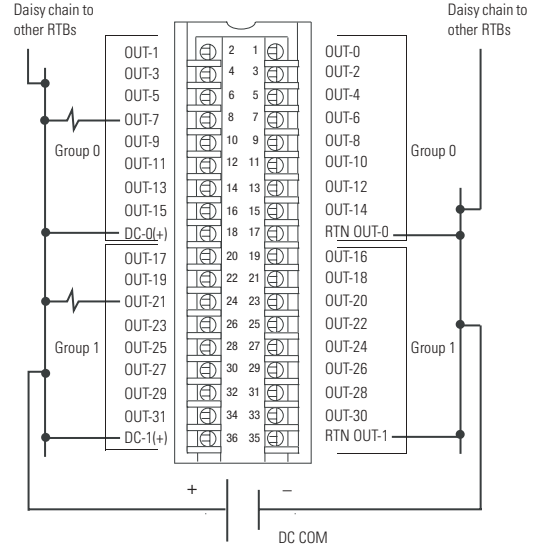


1756-OW16I



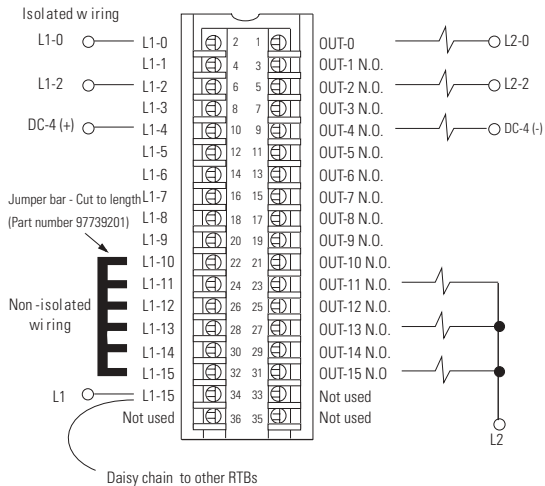
- NOTES: 1. All terminals with the same name are connected together on the module. For example, L1 can be connected to either terminal marked L1-15.  
 2. When daisy chaining the second L1-15 terminal to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.  
 3. If separate power sources are used, do not exceed the specified isolation voltage.

1756-OV32E



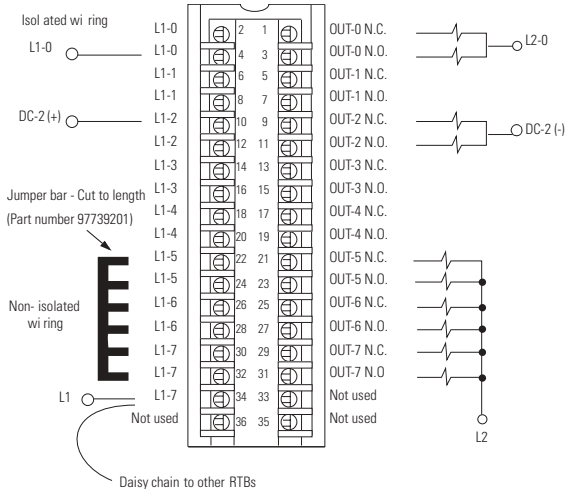
- NOTES: 1. When you daisy chain from a group to another RTB, always connect the daisy chain to the terminal directly connected to the supply wire, as shown above.  
 2. This wiring example uses a single voltage source.  
 3. If separate power sources are used, do not exceed the specified isolation voltage.  
 4. Do not physically connect more than two wires to a single RTB terminal.

1756-OW16I



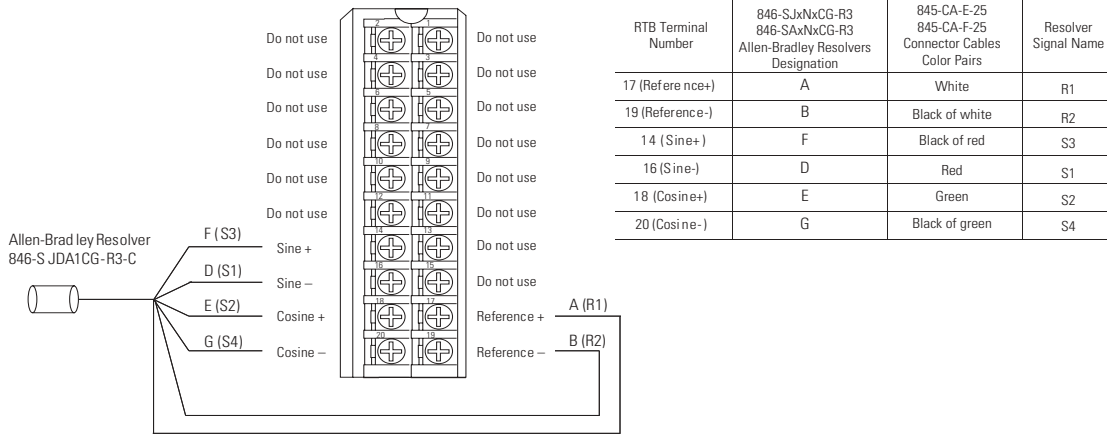
- NOTES: 1. All terminals with the same name are connected together on the module. For example, L1 can be connected to either terminal marked L1-15.  
 2. When daisy chaining the second L1-15 terminal to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.  
 3. If separate power sources are used, do not exceed the specified isolation voltage.

1756-OX8I



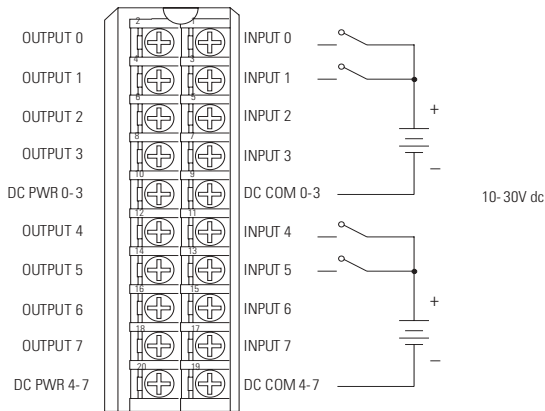
- NOTES: 1. All terminals with the same name are connected together on the module. For example, L1-0 can be connected to either terminal marked L1-0.  
 2. When you use the third L1-7 terminal to daisy chain to other RTBs, always connect the daisy chain to the terminal directly connected to the supply wire, as shown in the example above. Do not connect more than 2 wires to any single terminal.  
 3. If separate power sources are used, do not exceed the specified isolation voltage.

### 1756-PLS Resolver Module



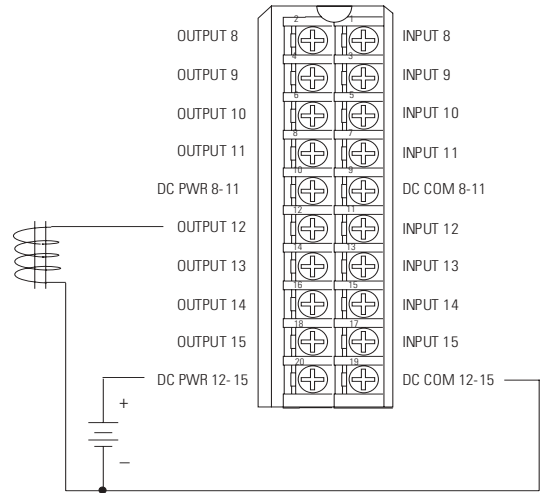
NOTE: Do not connect more than 2 wires to any single terminal.

### 1756-PLS Left Section I/O Module



NOTE: Do not connect more than 2 wires to any single terminal.

### 1756-PLS Right Section I/O Module

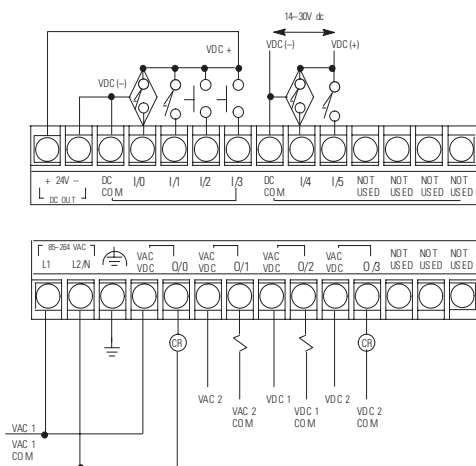


NOTE: Do not connect more than 2 wires to any single terminal.

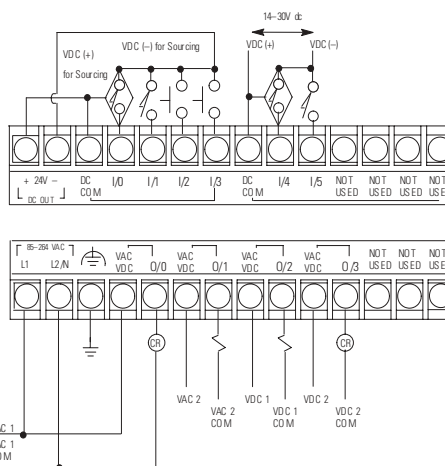
# 1761 Controller I/O on MicroLogix 1000 Controllers

## 1761-L10BWA

Sinking Input Configuration

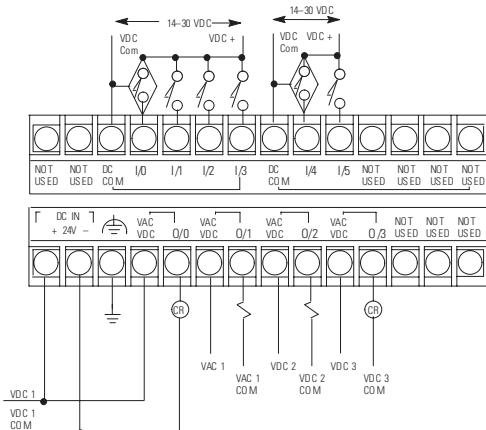


Sourcing Input Configuration

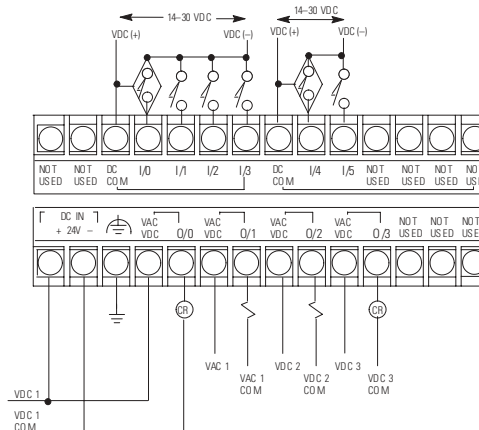


## 1761-L10BWB

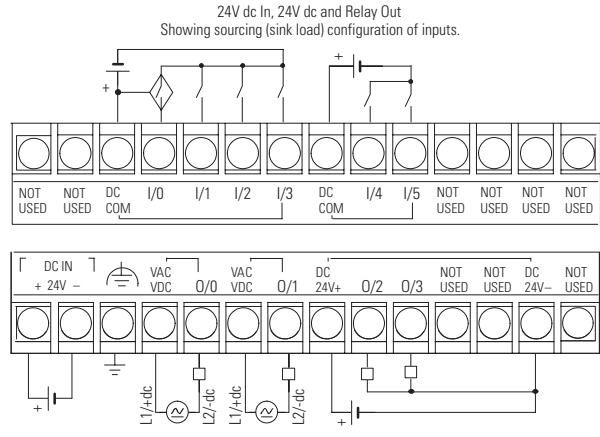
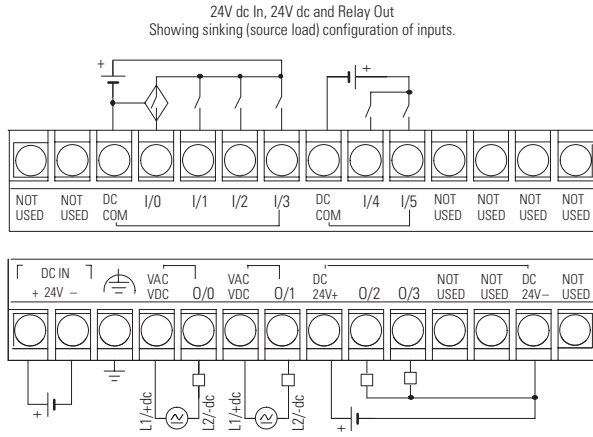
Sinking Input Configuration



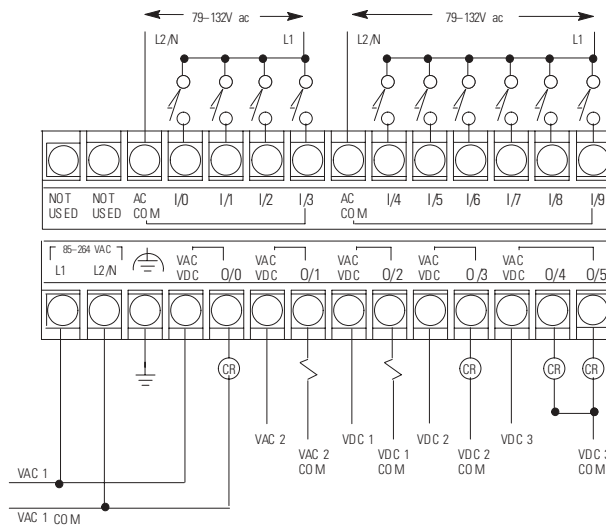
Sourcing Input Configuration



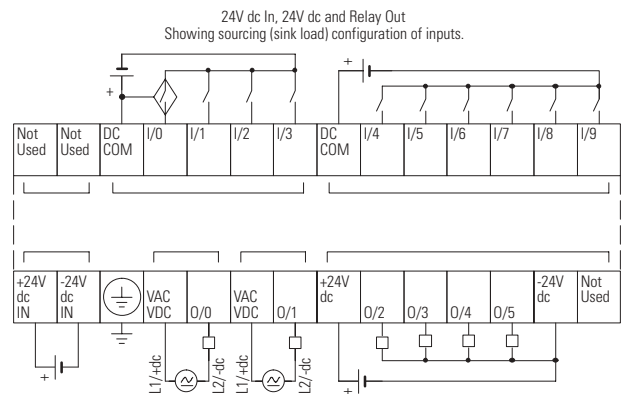
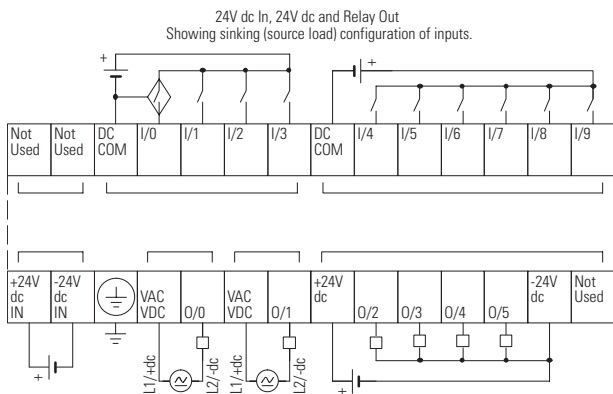
**1761-L10BXB**



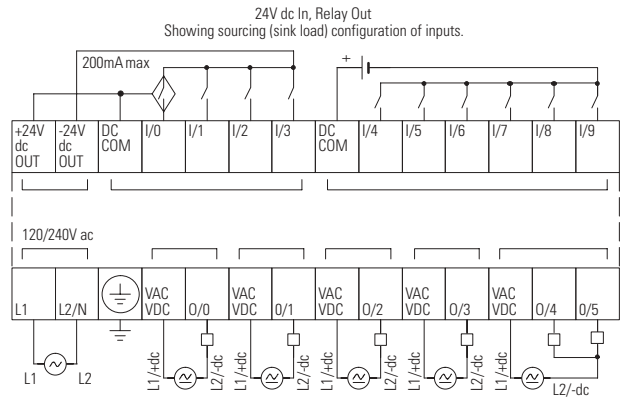
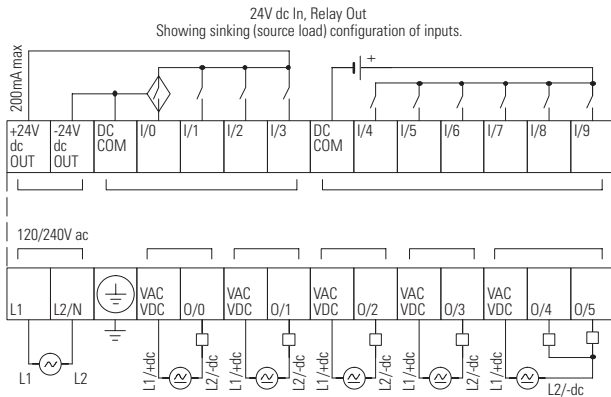
**1761-L16AWA**



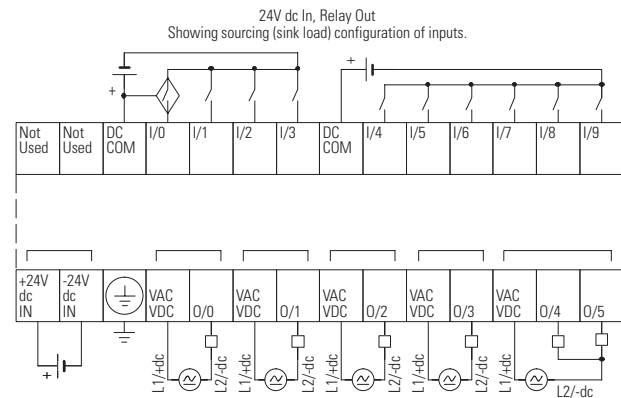
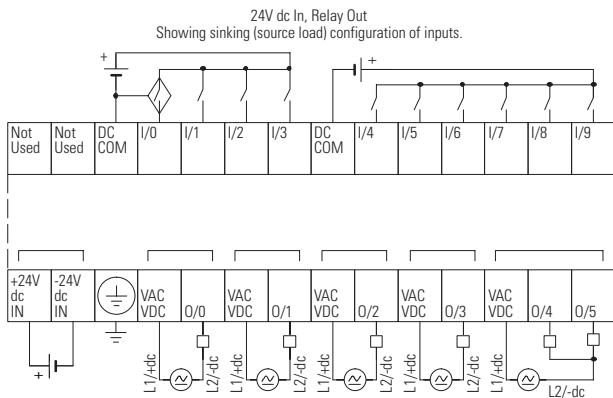
**1761-L16BBB**



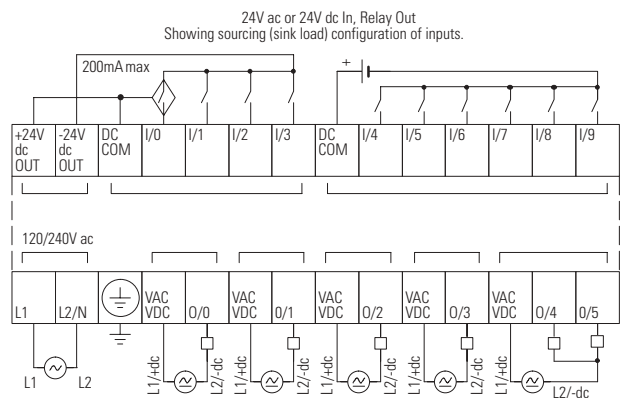
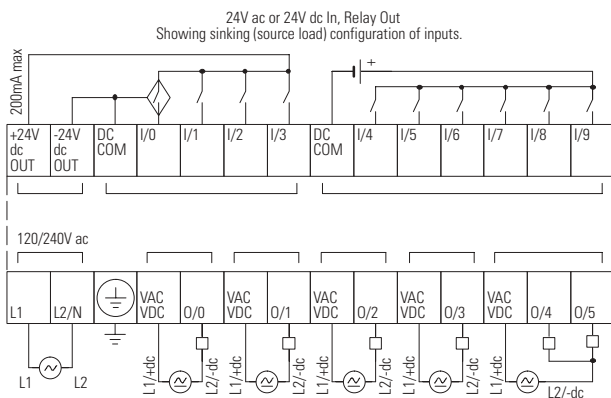
**1761-L16BWA**



**1761-L16BWB**

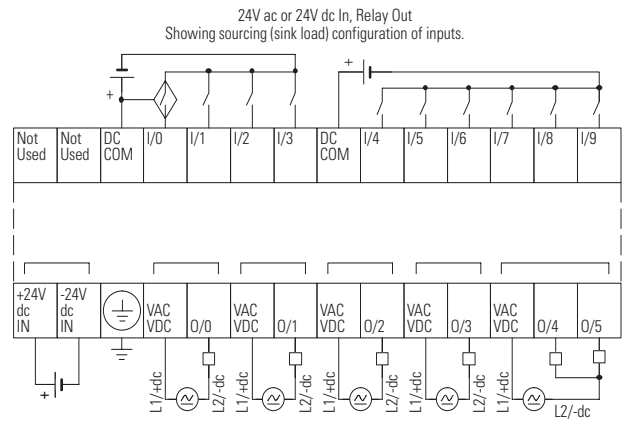
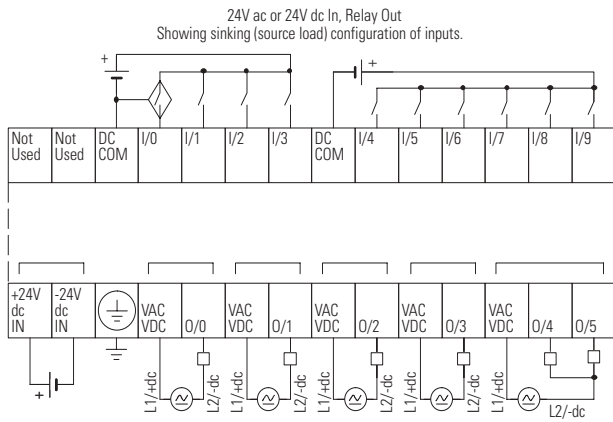


**1761-L16NWA**



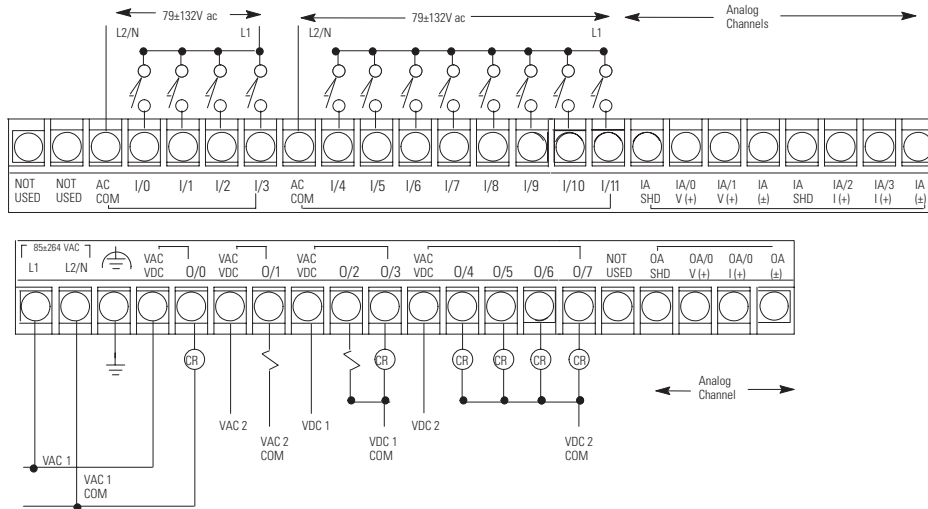
Input circuits on this module are capable of 24V ac or 24V dc operation.

**1761-L16NWB**



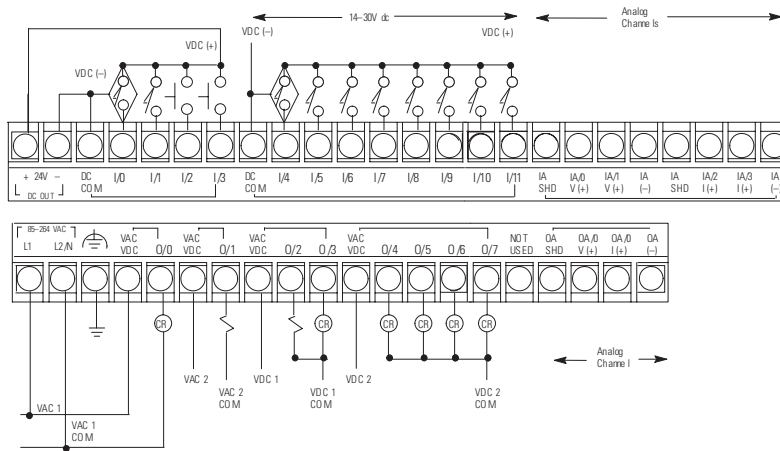
Input circuits on this module are capable of 24V ac or 24V dc operation.

**1761-L20AWA-5A**

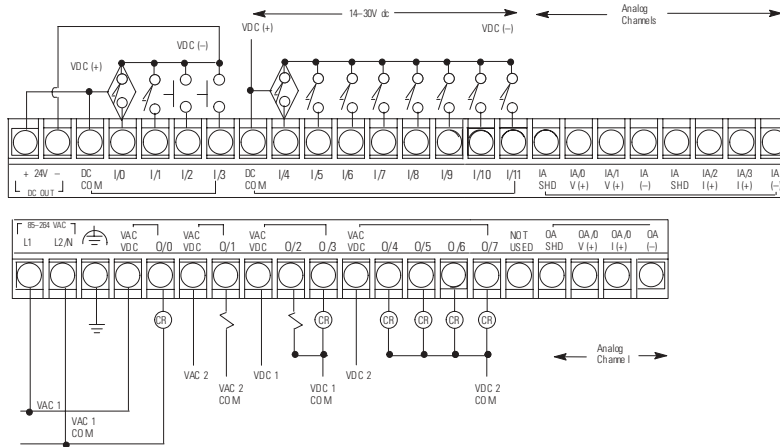


**1761-L20BWA-5A**

Sinking Input Configuration

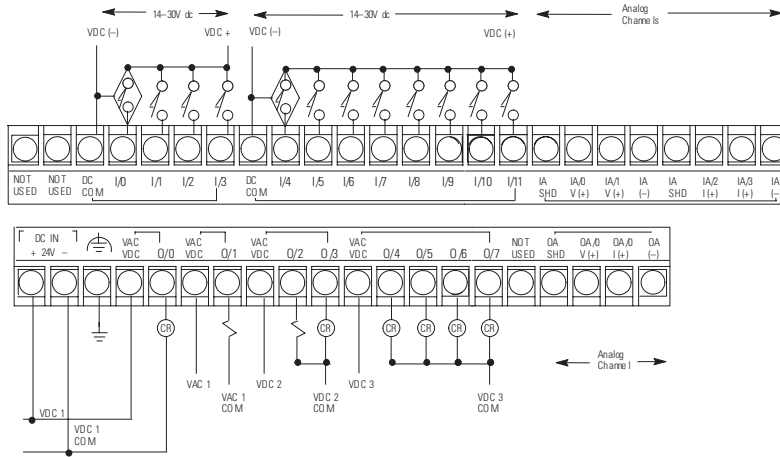


Sourcing Input Configuration

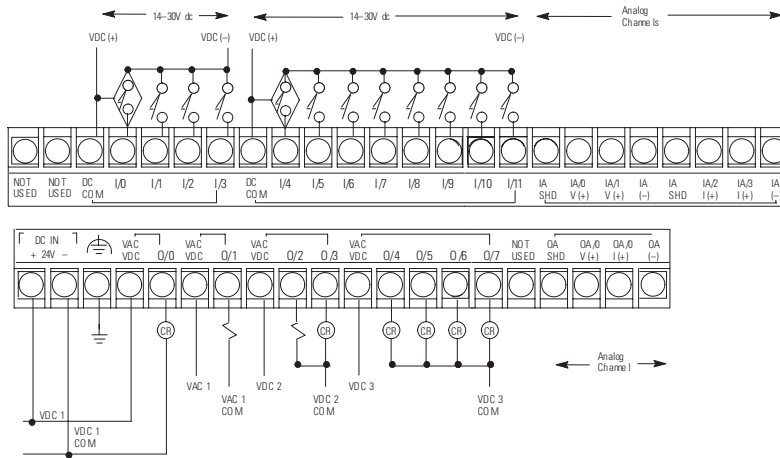


**1761-L20BWB-5A**

Sinking Input Configuration



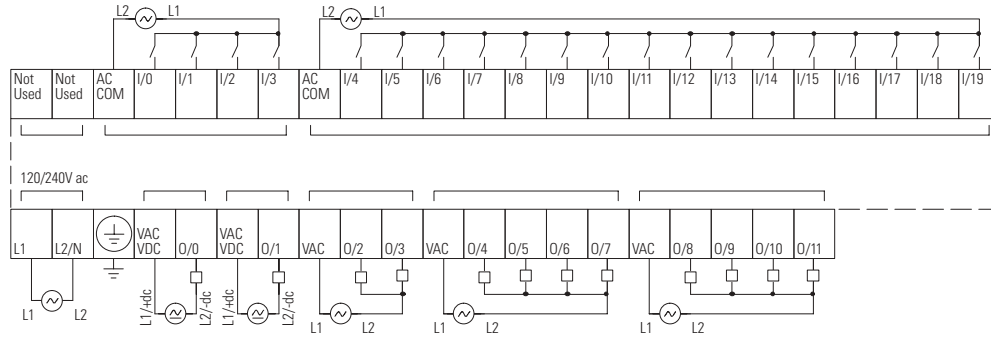
Sourcing Input Configuration





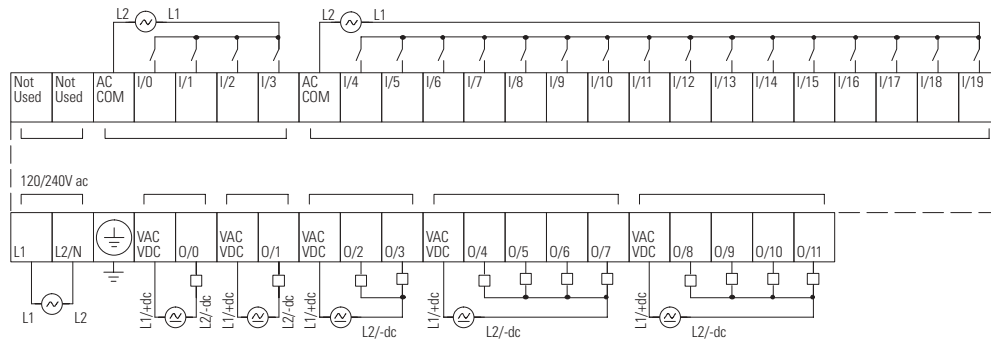
**1761-L32AAA**

120V ac In, 120/240V ac and Relay Out



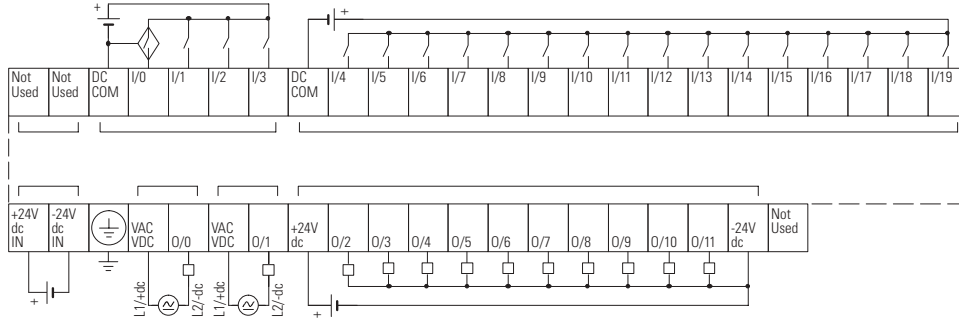
**1761-L32AWA**

120V ac In, Relay Out

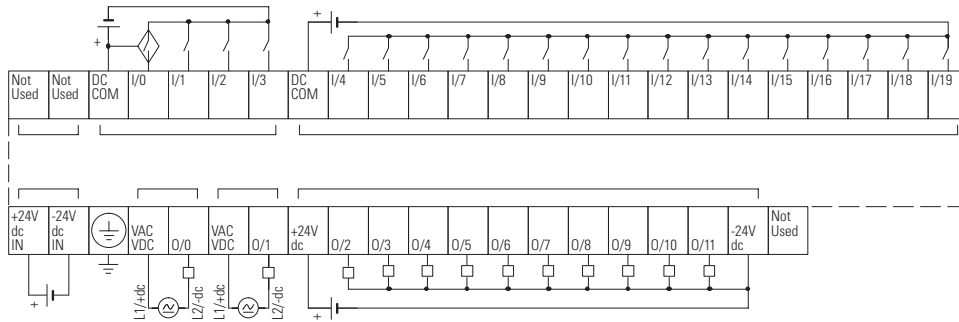


**1761-L32BBB**

24V dc In, 24V dc and Relay Out  
Showing sinking (source load) configuration of inputs.

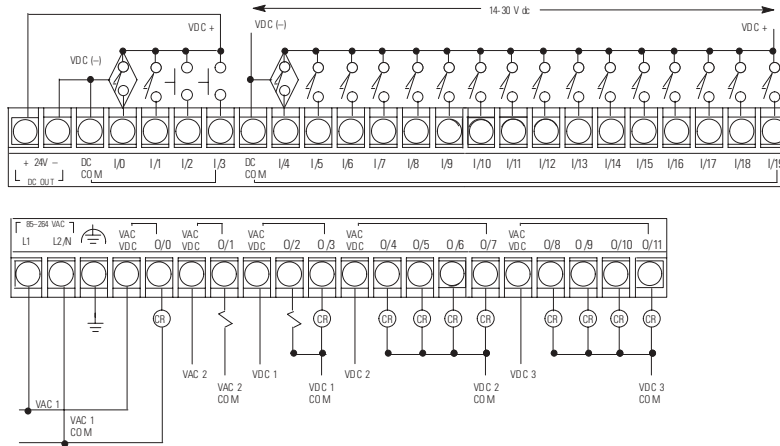


24V dc In, 24V dc and Relay Out  
Showing sourcing (sink load) configuration of inputs.

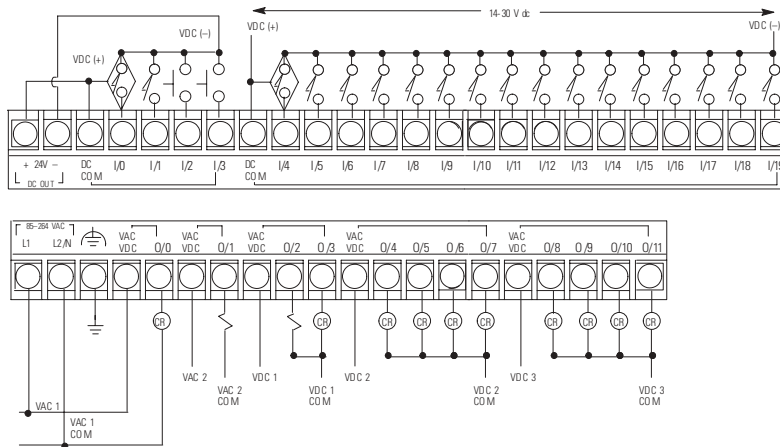


**1761-L32BWA**

Sinking Input Configuration

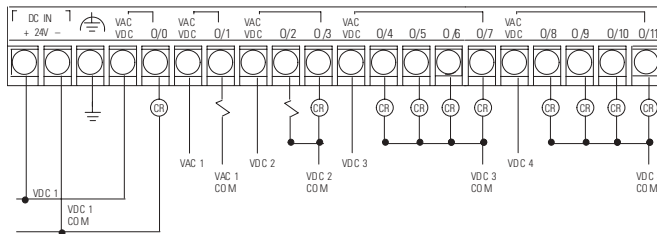
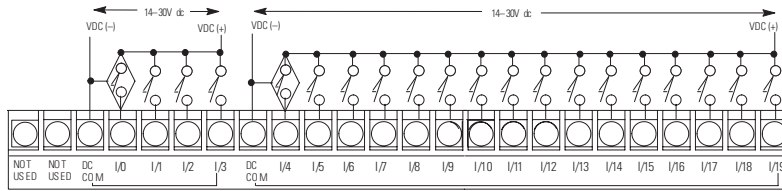


Sourcing Input Configuration

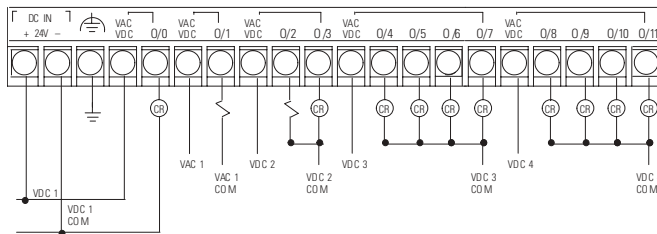
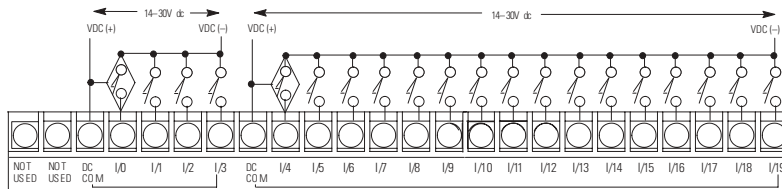


**1761-L32BWB**

**Sinking Input Configuration**



**Sourcing Input Configuration**



## 1762 I/O on MicroLogix 1200 Controllers

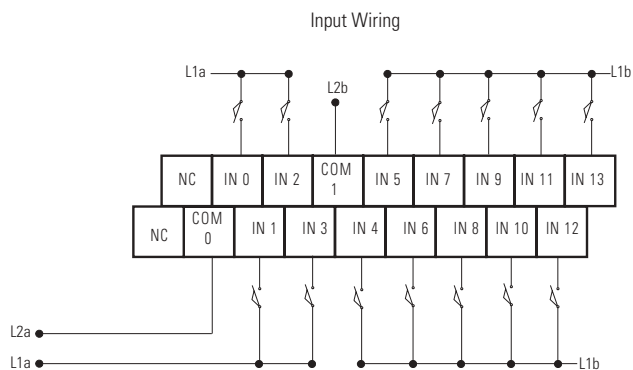
Unlike the other product sections in this document, this section does not list the 1762 catalog numbers in alphabetical order; instead, we first list the embedded controller I/O catalog numbers first because of their regular use in most 1762 applications.

### IMPORTANT

As you use this section, keep the following in mind:

- Catalog numbers that begin with 1762-Lxx (e.g. 1762-L24AWA) represent embedded I/O products
- Catalog numbers that begin in any combination other than 1762-Lxx (e.g. 1762-IA8) represent expansion I/O products

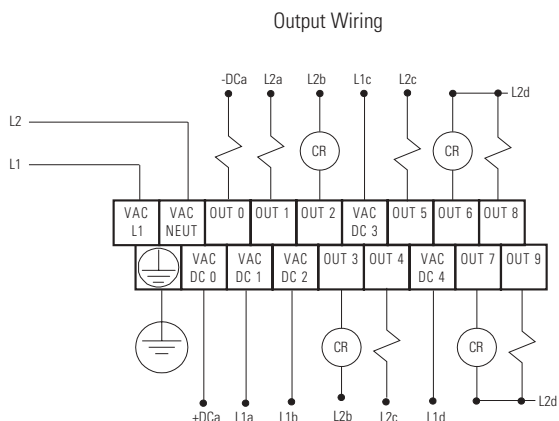
### 1762-L24AWA 1762-L24AWAR



Terminal Groupings

Input Group	Common Terminal	Input Terminals
Group 0	AC COM 0	I/0 through I /3
Group 1	AC COM 1	I/4 through I /13

NC - No connection

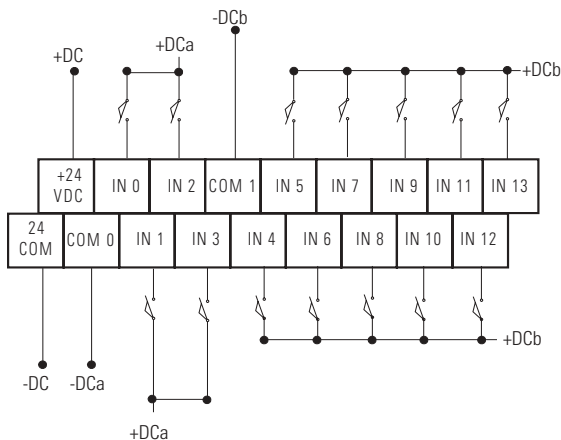


Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2 through O/3
Group 3	VAC/VDC 3	O4 through O /5
Group 4	VAC/VDC 4	O/6 through O/9

**1762-L24BWA**  
**1762-L24BWAR**

Sinking Input Wiring



Terminal Groupings

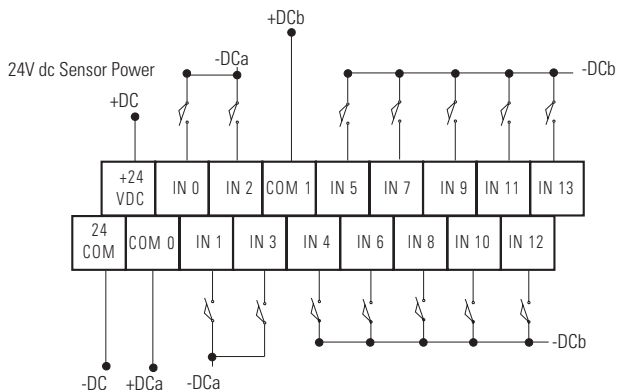
Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I /3
Group 1	DC COM 1	I/4 through I /13

**ATTENTION**



The 24V dc sensor power source must not be used to power output circuits. It should only be used to power input devices (e.g. sensors, switches).

Sourcing Input Wiring



Terminal Groupings

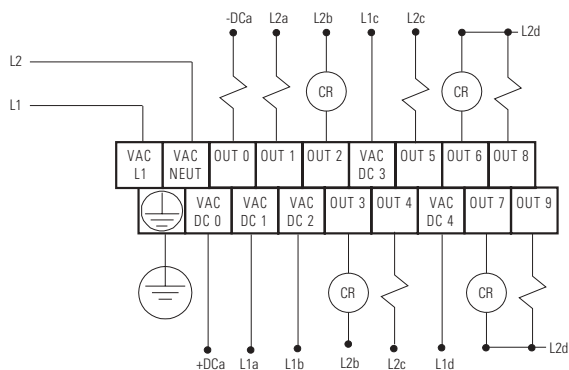
Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I /3
Group 1	DC COM 1	I/4 through I /13

**ATTENTION**



The 24V dc sensor power source must not be used to power output circuits. It should only be used to power input devices (e.g. sensors, switches).

Output Wiring

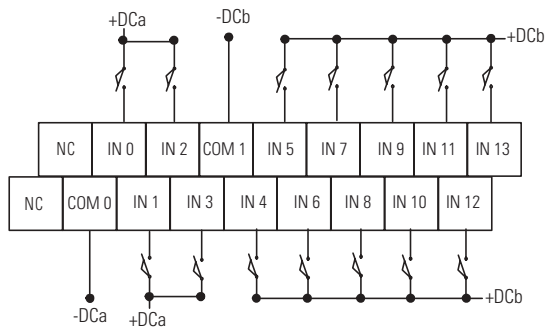


Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2 through O/3
Group 3	VAC/VDC 3	O4 through O /5
Group 4	VAC/VDC 4	O/6 through O/9

**1762-L24BXB**  
**1762-L24BXR**

Sinking Input Wiring

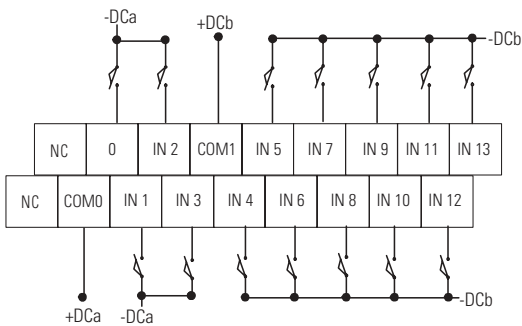


Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I /3
Group 1	DC COM 1	I/4 through I /13
Group 0	AC COM 0	I/0 through I /3

NC - No connection

Sourcing Input Wiring

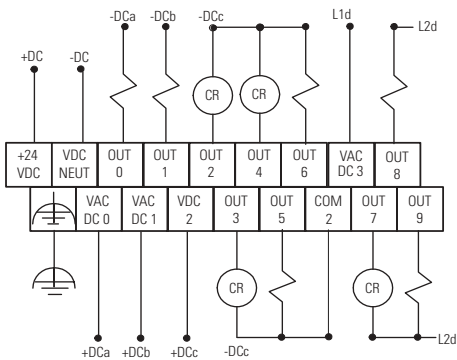


Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I /3
Group 1	DC COM 1	I/4 through I /13
Group 0	AC COM 0	I/0 through I /3

NC - No connection

Output Wiring

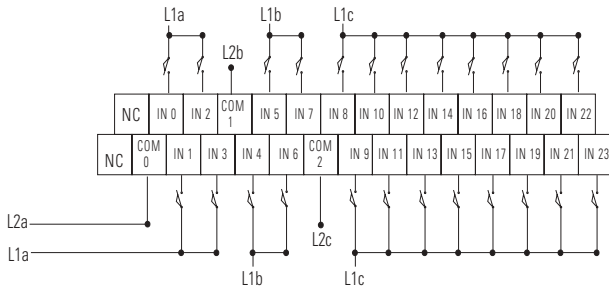


Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VDC 2, VDC COM 2	O/2 through O/6
Group 3	VAC/VDC 3	O/7 through O/9

**1762-L40AWA**  
**1762-L40AWAR**

Input Wiring

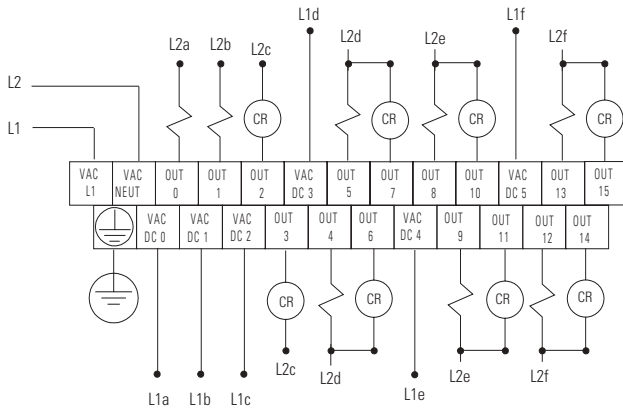


Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	AC COM 0	I/0 through I/3
Group 1	AC COM 1	I/4 through I/7
Group 2	AC COM 2	I/8 through I/23

NC - No connection

Output Wiring



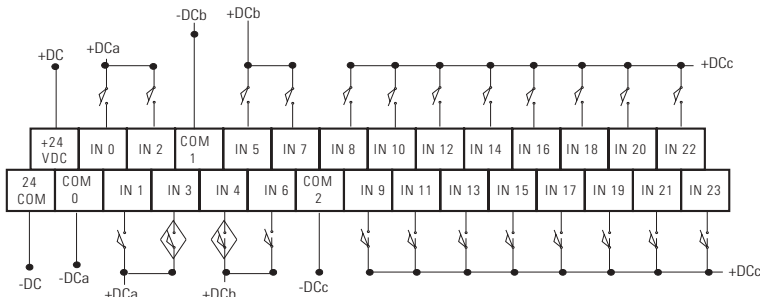
Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2 through O/3
Group 3	VAC/VDC 3	O/4 through O/7
Group 4	VAC/VDC 4	O/8 through O/11
Group 5	VAC/VDC 5	O/12 through O/15



**1762-L40BWA  
1762-L40BWAR**

Sinking Input Wiring



Terminal Groupings

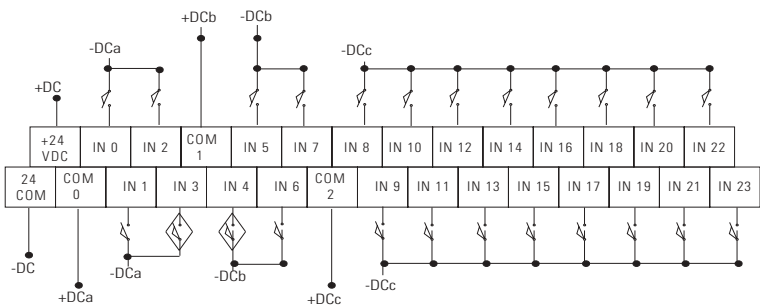
Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/23

**ATTENTION**



The 24V dc sensor power source must not be used to power output circuits. It should only be used to power input devices (e.g. sensors, switches).

Sourcing Input Wiring



Terminal Groupings

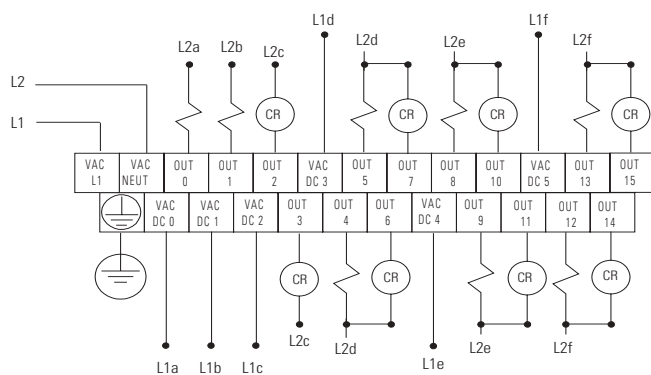
Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/23

**ATTENTION**



The 24V dc sensor power source must not be used to power output circuits. It should only be used to power input devices (e.g. sensors, switches).

Output Wiring

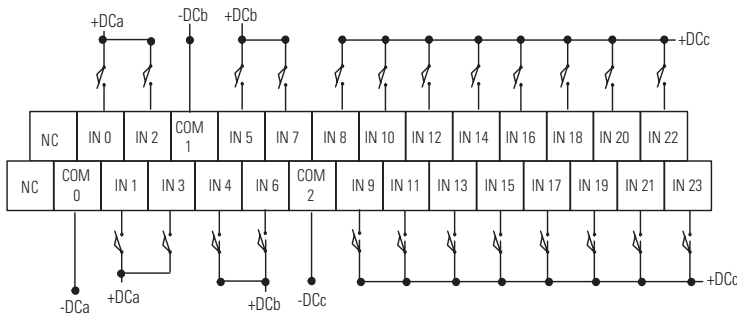


Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2 through O/3
Group 3	VAC/VDC 3	O/4 through O/7
Group 4	VAC/VDC 4	O/8 through O/11
Group 5	VAC/VDC 5	O/12 through O/15

**1762-L40BXB**  
**1762-L40BXR**

Sinking Input Wiring

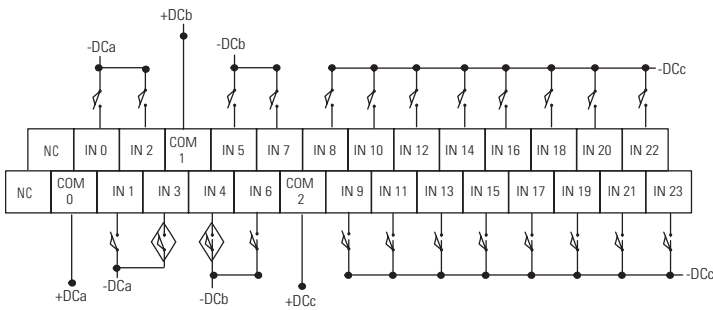


Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/23

NC - No connection

Sourcing Input Wiring

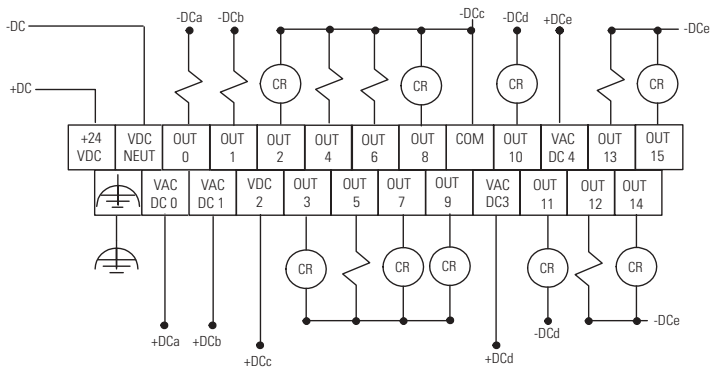


Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/23

NC - No connection

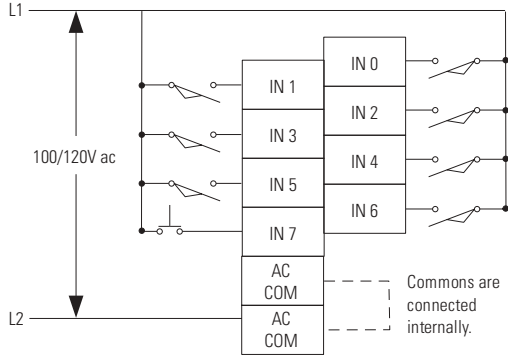
Output Wiring



Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VDC 2, VDC COM 2	O/2 through O/9
Group 3	VAC/VDC 3	O/10 through O/11
Group 4	VAC/VDC 4	O/12 through O/15

1762-IA8



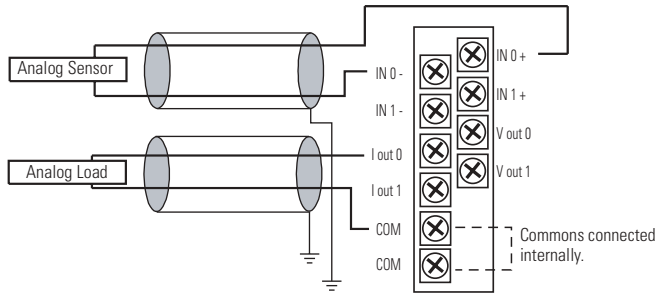
**ATTENTION** Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

A current limiting resistor can be used to limit inrush current; however, the operating characteristics of the ac input circuit will be affected. If a 6.8KΩ resistor is placed in series with the input, the inrush current is reduced to 35 mA. In this configuration the minimum on-state voltage increases to 92V ac. Before adding the resistor in a hazardous environment, be sure to consider the operating temperature of the resistor and the temperature limits of the environment. The operating temperature of the resistor must remain below the temperature limit of the environment.

Also, this product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the module's mounting tabs or DIN rail (if used) are not required unless the mounting surface cannot be grounded.

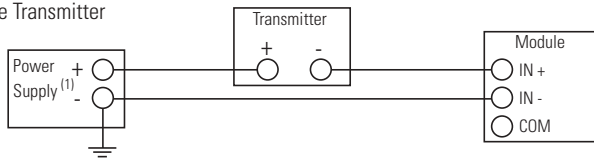
1762-IF20F2

Differential Sensor Transmitter Types

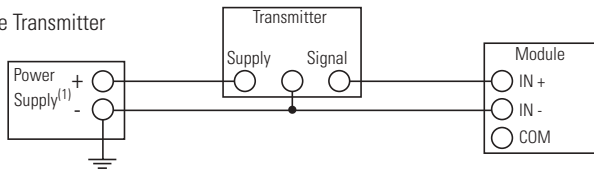


**ATTENTION** Analog outputs may fluctuate for less than a second when power is applied or removed. This characteristic is common to most analog outputs. While the majority of loads will not recognize this short signal, it is recommended that preventive measures be taken to ensure that connected equipment is not affected.

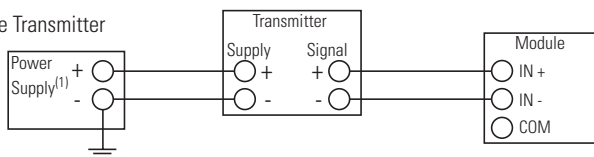
2-Wire Transmitter



3-Wire Transmitter



4-Wire Transmitter



Grounding the cable shield at the module end only usually provides sufficient noise immunity. However, for best cable shield performance, earth ground the shield at both ends, using a 0.01µF capacitor at one end to block AC power ground currents, if necessary.

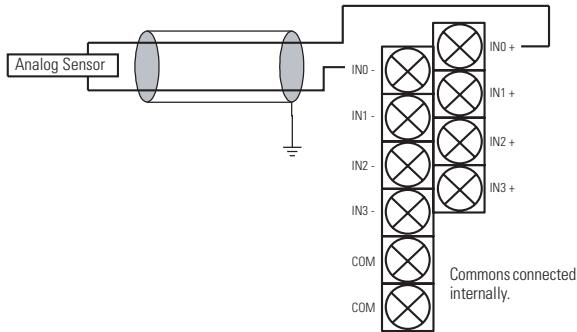
All power supplies rated N.E.C. Class 2.

Select the input type, current or voltage, using the switch located on the module's circuit board and the input type/range selection bits in the Configuration Data File.

The output type selection, current or voltage, is made by wiring to the appropriate terminals, Iout or Vout, and by the type/range selection bits in the Configuration Data File.

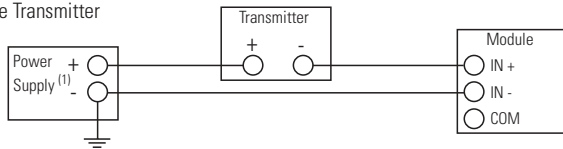
1762-IF4

Differential Sensor Transmitter Types



Grounding the cable shield at the module end only usually provides sufficient noise immunity. However, for best cable shield performance, earth ground the shield at both ends, using a 0.01µF capacitor at one end to block AC power ground currents, if necessary.

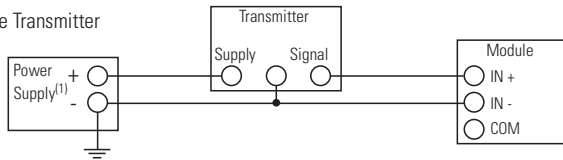
2-Wire Transmitter



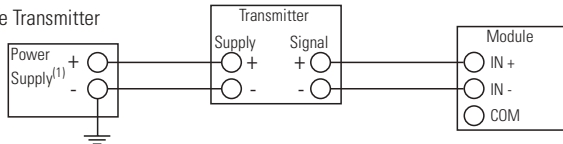
All power supplies rated N.E.C. Class 2.

Select the input type, current or voltage, using the switch located on the module's circuit board and the input type/range selection bits in the Configuration Data File.

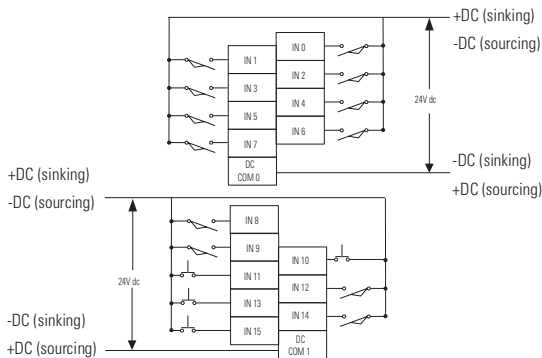
3-Wire Transmitter



4-Wire Transmitter



1762-IQ16



ATTENTION



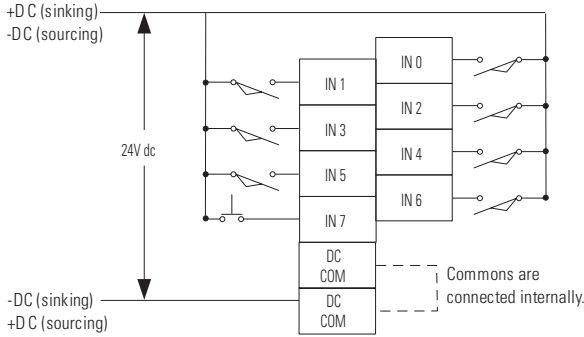
Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

Miswiring of the module to an AC power source will damage the module.

Sinking/Sourcing Inputs - Sourcing/sinking describes the current flow between the I/O module and the field device. Sourcing I/O circuits supply (source) current to sinking field devices. Sinking I/O circuits are driven by a current sourcing field device. Field devices connected to the negative side (DC Common) of the field power supply are sinking field devices. Field devices connected to the positive side (+V) of the field supply are sourcing field devices.

Also, this product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

1762-IQ8



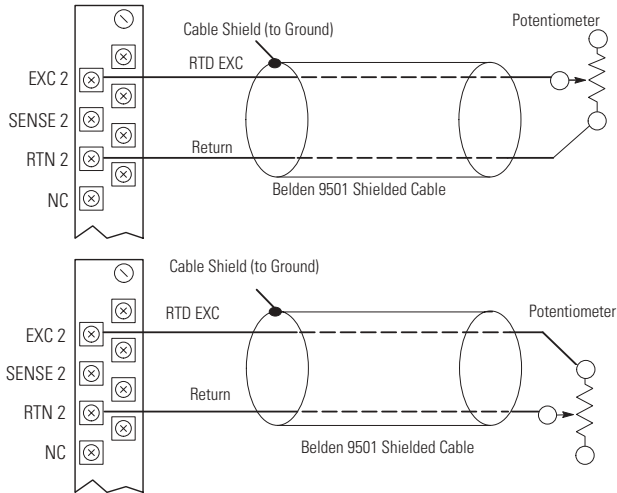
**ATTENTION** Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

Miswiring of the module to an AC power source will damage the module.

Sinking/Sourcing Inputs - Sourcing/sinking describes the current flow between the I/O module and the field device. Sourcing I/O circuits supply (source) current to sinking field devices. Sinking I/O circuits are driven by a current sourcing field device. Field devices connected to the negative side (DC Common) of the field power supply are sinking field devices. Field devices connected to the positive side (+V) of the field supply are sourcing field devices.

Also, this product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

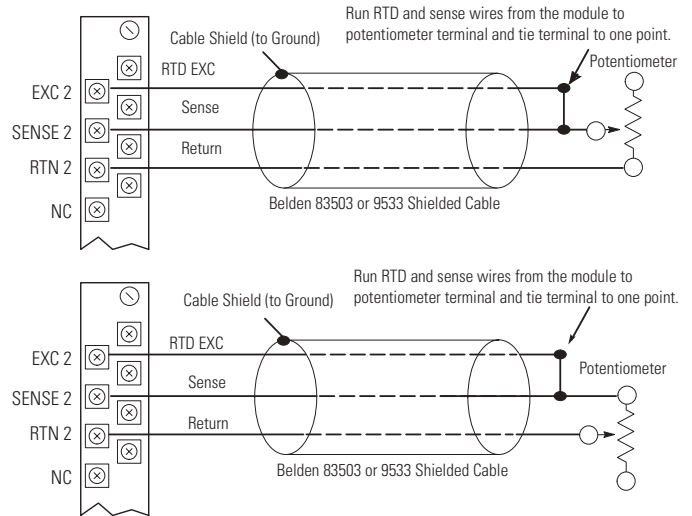
1762-IR4 2-Wire Potentiometer Interconnection



TIP: The potentiometer wiper arm can be connected to either the EXC or return terminal depending on whether you want increasing or decreasing resistance.

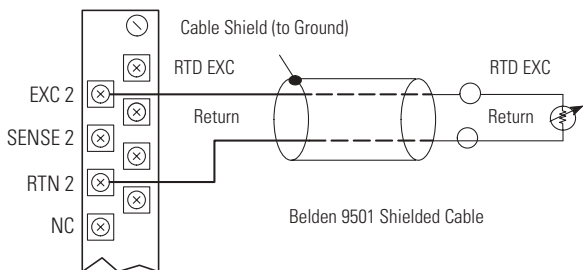
**IMPORTANT:** Using 2-wire configurations does not permit the module to compensate for resistance error due to lead wire length. The resulting analog data includes the effect of this uncompensated lead wire resistance. The module continues to place the uncompensated analog data in the input data file, but the open-circuit status bit (OCx) is set in word 4 of the input data file for any enabled channel using a 2-wire configuration. These status bits may be used in the control program to indicate that the analog data includes error due to uncompensated lead wires.

1762-IR4 3-Wire Potentiometer Interconnection

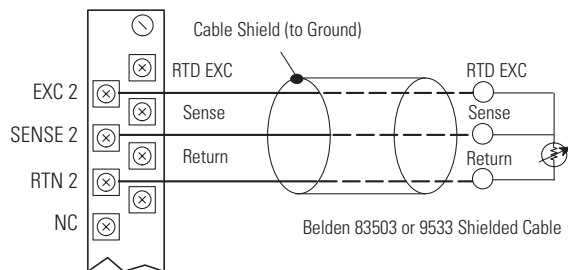


TIP: The potentiometer wiper arm can be connected to either the EXC or return terminal depending on whether you want increasing or decreasing resistance.

**1762-IR4 2-Wire RTD**

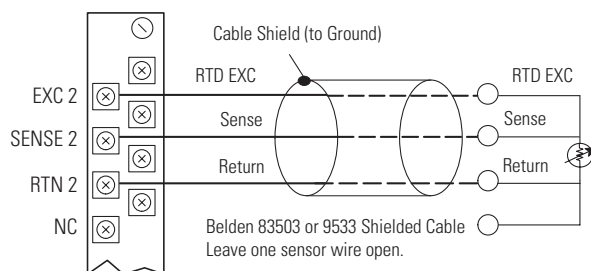


**1762-IR4 3-Wire RTD**

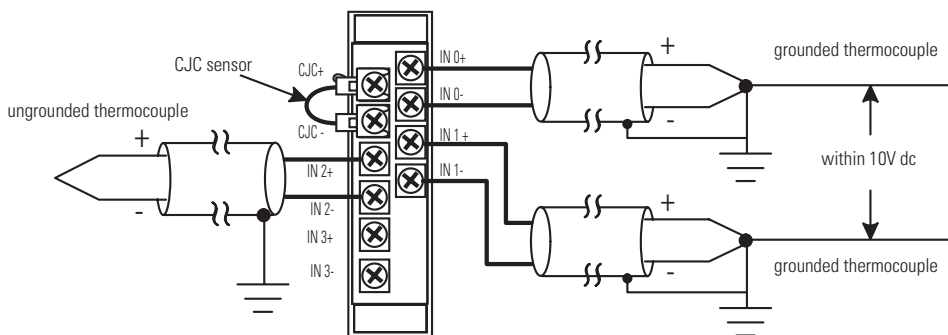


**IMPORTANT:** Using 2-wire configurations does not permit the module to compensate for resistance error due to lead wire length. The resulting analog data includes the effect of this uncompensated lead wire resistance. The module continues to place the uncompensated analog data in the input data file, but the open-circuit status bit (OCx) is set in word 4 of the input data file for any enabled channel using a 2-wire configuration. These status bits may be used in the control program to indicate that the analog data includes error due to uncompensated lead wires.

**1762-IR4 4-Wire RTD**



**1762-IT4**



**COLD JUNCTION COMPENSATION**

To obtain accurate readings from each of the channels, the temperature between the thermocouple wire and the input channel must be compensated for. A cold junction compensating thermistor has been integrated in the terminal block. The thermistor must remain installed to retain accuracy.

**ATTENTION**

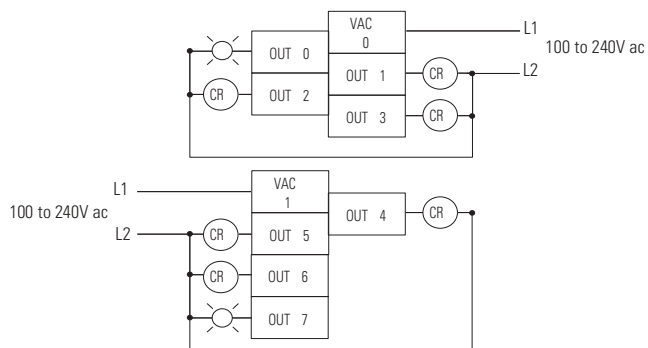


Do not remove or loosen the cold junction compensating thermistor assembly. This assembly is critical to ensure accurate thermocouple input readings at each channel. The module will operate in the thermocouple mode, but at reduced accuracy if the CJC sensor is removed.

**IMPORTANT:** When using grounded and/or exposed thermocouples that are touching electrically conductive material, the ground potential between any two channels cannot exceed  $\pm 10V$  dc, or temperature readings will be inaccurate.

**TIP:** When using an ungrounded thermocouple, the shield must be connected at the module end.

**1762-0A8**



**ATTENTION**

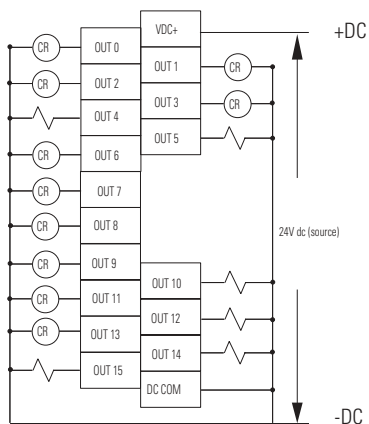


Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

Miswiring of the module to an AC power source will damage the module.

To limit the effects of leakage current through triac outputs, a loading resistor can be connected in parallel with your load. For typical 120V ac applications, use a 15k ohm, 2W resistor. For typical 240V ac applications, use a 15k ohm, 5W resistor.

**1762-0B16**



**ATTENTION**

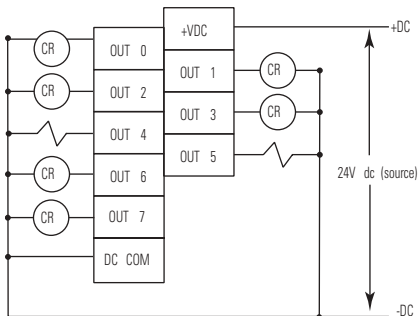


Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

Miswiring of the module to an AC power source will damage the module.

Surge Suppression – Connecting surge suppressors across your external inductive load will extend the life of the relay contacts. For additional details, refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1.

**1762-0B8**

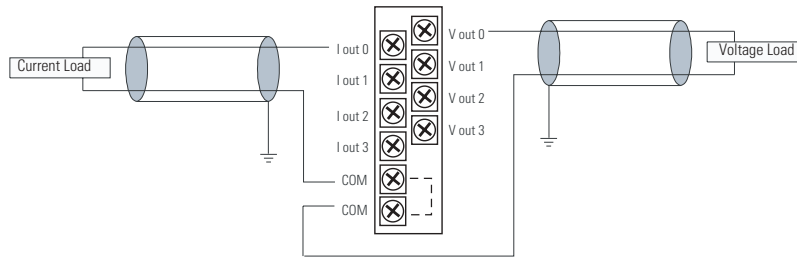


**ATTENTION**



Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

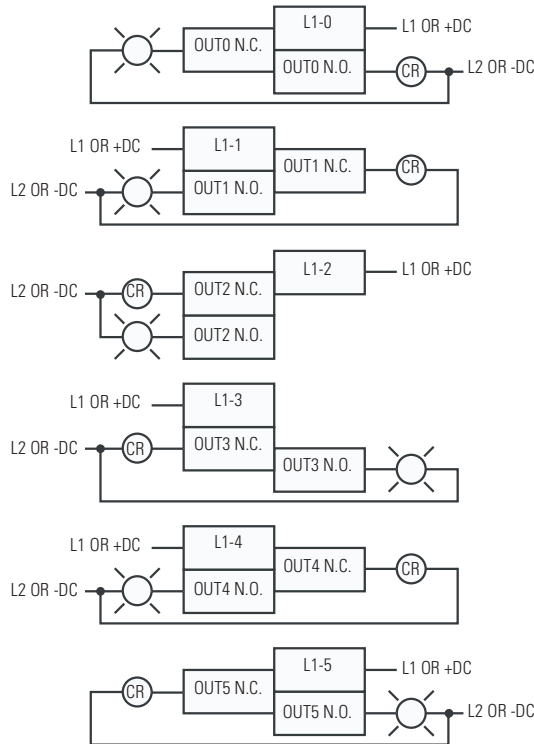
**1762-OF4**



**ATTENTION** Analog outputs may fluctuate for less than a second when power is applied or removed. This characteristic is common to most analog outputs. While the majority of loads will not recognize this short signal, it is recommended that preventive measures be taken to ensure that connected equipment is not affected.

**TIP** Grounding the cable shield at the module end only usually provides sufficient noise immunity. However, for best cable shield performance, earth ground the shield at both ends, using a 0.01 µF capacitor at one end to block AC power ground currents, if necessary.

**1762-0X6I**

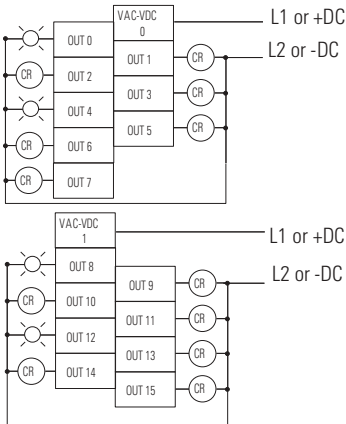


This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the module's mounting tabs or DIN rail (if used) are not required unless the mounting surface cannot be grounded. For more information, refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1.

Surge Suppression – Connecting surge suppressors across your external inductive load will extend the life of the relay contacts. For additional details, refer to publication 1770-4.1.



1762-OW16



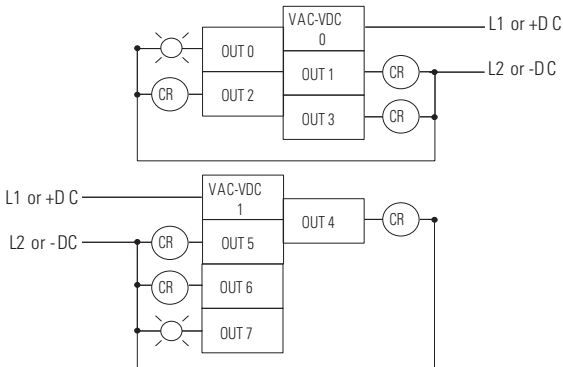
ATTENTION



Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

Surge Suppression – Connecting surge suppressors across your external inductive load will extend the life of the relay contacts. For additional details, refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1.

1762-OW8



ATTENTION



Be careful when stripping wires. Wire fragments that fall into a module could cause damage when power is applied. Once wiring is complete, ensure the module is free of all metal fragments.

Surge Suppression – Connecting surge suppressors across your external inductive load will extend the life of the relay contacts. For additional details, refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1.

**Notes:**

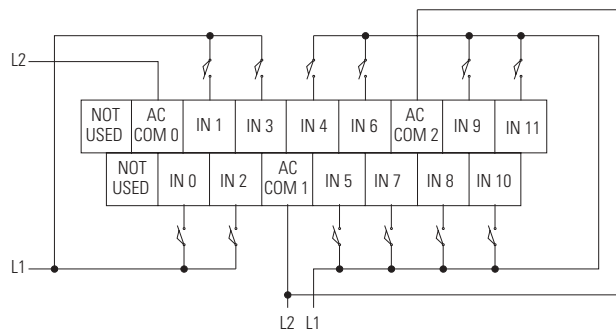
## 1764 Controller I/O on MicroLogix 1500 Controllers

### IMPORTANT

Expansion I/O for the MicroLogix 1500 controllers is accomplished with the 1769 Compact I/O modules. For more information on wiring the 1769 Compact I/O modules, see Chapter 11.

### 1764-24AWA

Input Terminals

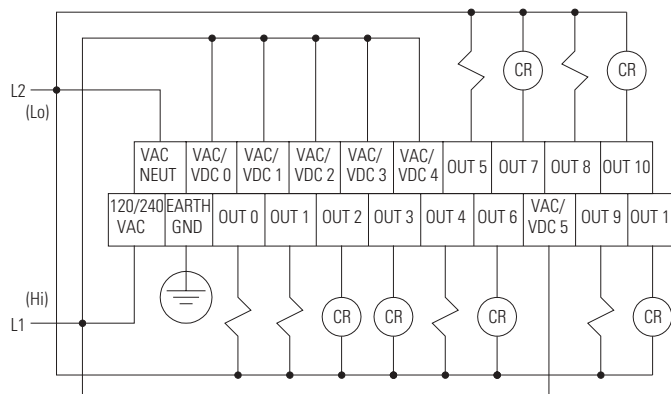


"NOT USED" terminals are not intended for use as connection points.

Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	AC COM 0	I/0 through I/3
Group 1	AC COM 1	I/4 through I/7
Group 2	AC COM 2	I/8 through I/11

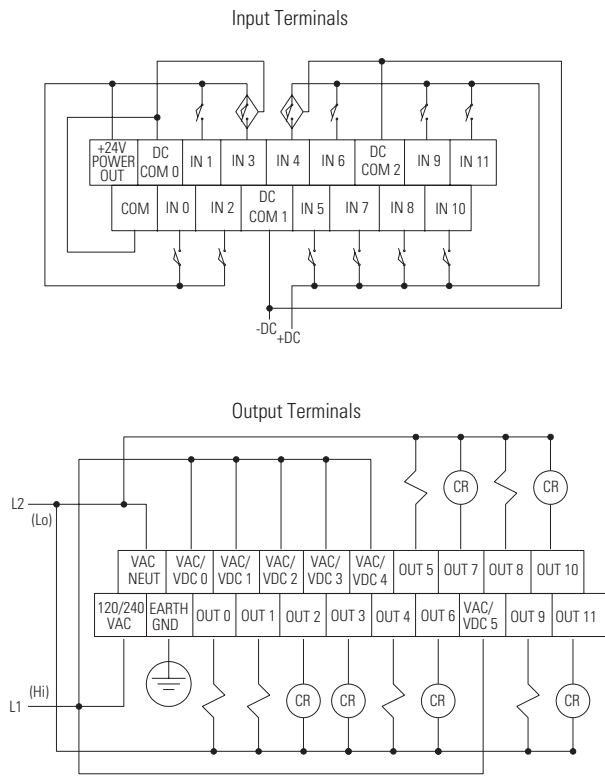
Output Terminals



Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2
Group 3	VAC/VDC 3	O/3
Group 4	VAC/VDC 4	O/4 through O/7
Group 5	VAC/VDC 5	O/8 through O/11

### 1764-24BWA - Sinking Inputs



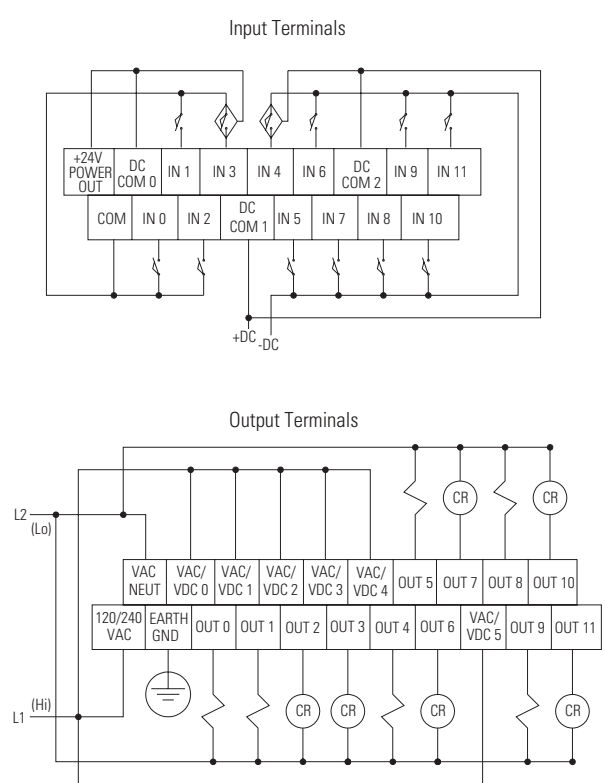
Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/11

Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2
Group 3	VAC/VDC 3	O/3
Group 4	VAC/VDC 4	O/4 through O/7
Group 5	VAC/VDC 5	O/8 through O/11

### 1764-24BWA - Sourcing Inputs



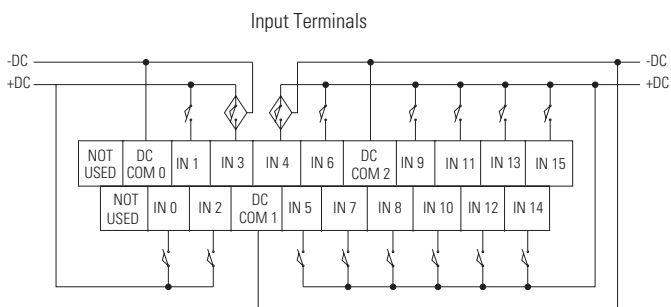
Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/11

Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VAC/VDC 2	O/2
Group 3	VAC/VDC 3	O/3
Group 4	VAC/VDC 4	O/4 through O/7
Group 5	VAC/VDC 5	O/8 through O/11

### 1764-28BXB - Sinking Inputs

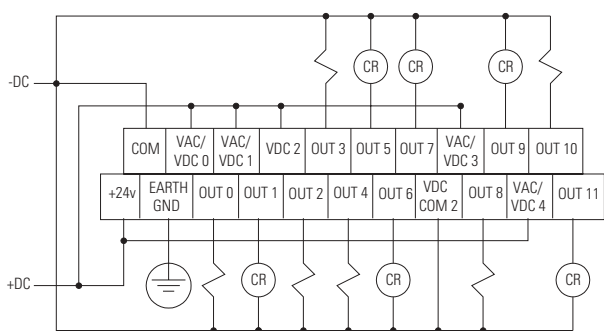


"NOT USED" terminals are not intended for use as connection points.

Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/15

Output Terminals (FET Outputs are Sourcing Only)

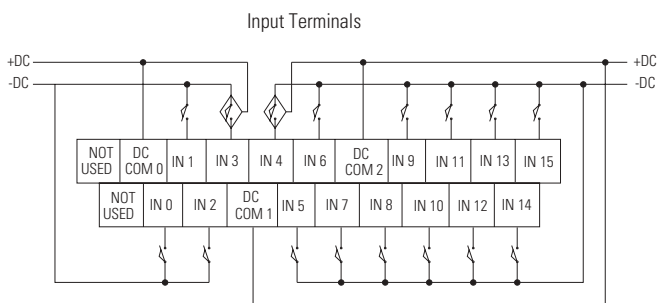


Outputs 2 - 7 are FET outputs

Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VDC 2, VDC COM 2	O/2 through O/7
Group 3	VAC/VDC 3	O/8 and O/9
Group 4	VAC/VDC 4	O/10 and O/11

### 1764-28BXB - Sourcing Inputs

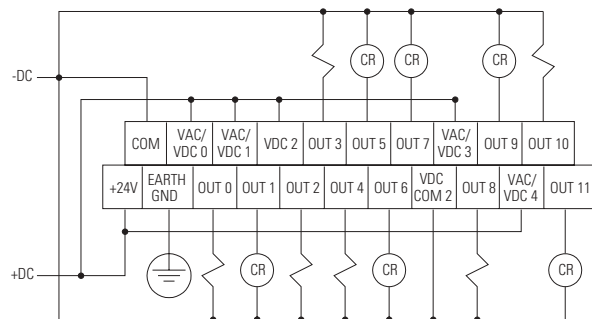


"NOT USED" terminals are not intended for use as connection points.

Terminal Groupings

Input Group	Common Terminal	Input Terminal
Group 0	DC COM 0	I/0 through I/3
Group 1	DC COM 1	I/4 through I/7
Group 2	DC COM 2	I/8 through I/15

Output Terminals (FET Outputs are Sourcing Only)



Outputs 2 - 7 are FET outputs

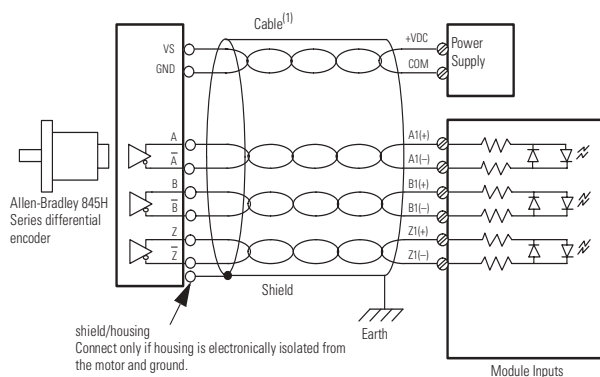
Terminal Groupings

Output Group	Voltage Terminal	Output Terminal
Group 0	VAC/VDC 0	O/0
Group 1	VAC/VDC 1	O/1
Group 2	VDC 2, VDC COM 2	O/2 through O/7
Group 3	VAC/VDC 3	O/8 and O/9
Group 4	VAC/VDC 4	O/10 and O/11

**Notes:**

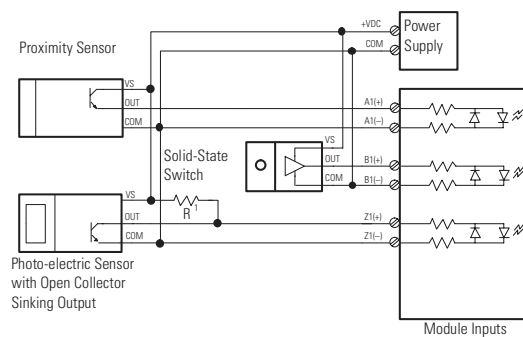
## 1769 Compact I/O Modules

### 1769-HSC – Differential Encoder applications



1. Refer to your encoder manual for proper cable type. The type of cable used should be twisted pair, individually shielded cable with a maximum length of 300m (1000 ft.).

### 1769-HSC – Discrete Device applications



- External resistors are required if they are not internal to the sensor. The pull-up resistor (R) value depends on the power supply value. The table below shows the maximum resistor values for typical supply voltages. To calculate the maximum resistor value, use the following formula:

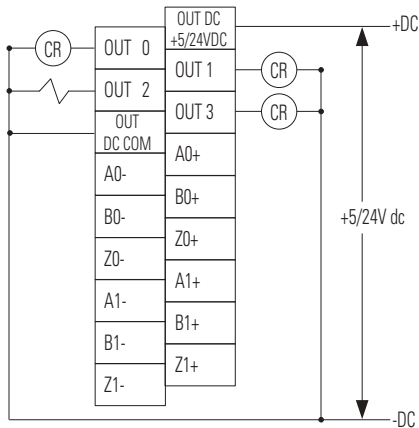
$$R = \frac{(V_{dc} - V_{min})}{I_{min}}$$

where: R = maximum pull-up resistor value  
V<sub>dc</sub> = power supply voltage  
V<sub>min</sub> = 2.6V dc  
I<sub>min</sub> = 6.8 mA

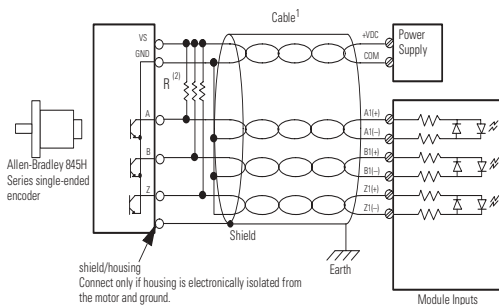
Power Supply Voltage (V dc)	Maximum Pull-Up Resistor Value (a)
5V dc	35.2 Ω
12V dc	1382 Ω
24V dc	3147 Ω

(a) Resistance values may change, depending on your application. The minimum resistor (R) value depends on the current sinking capability of the sensor. Refer to your sensor's documentation.

**1769-HSC – Output Device applications**



**1769-HSC – Single-Ended Encoder applications**



1. Refer to your encoder manual for proper cable type. The type of cable used should be twisted pair, individually shielded cable with a maximum length of 300m (1000ft).
2. External resistors are required if they are not internal to the sensor. The pull-up resistor (R) value depends on the power supply value. The table below shows the maximum resistor values for typical supply voltages. To calculate the maximum resistor value, use the following formula:

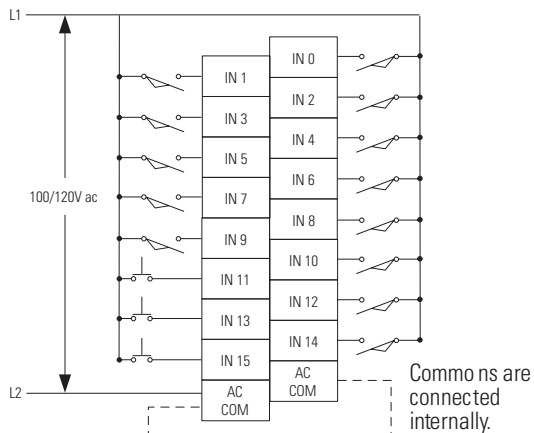
$$R = \frac{(Vdc - Vmin)}{Imin}$$

where: R = maximum pull-up resistor value  
 Vdc = power supply voltage  
 Vmin = 2.6V dc  
 Imin = 6.8 mA

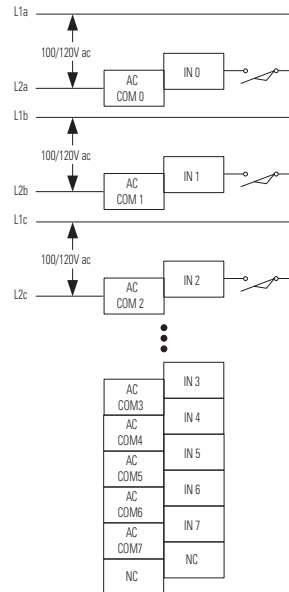
Power Supply Voltage (V dc)	Maximum Pull-Up Resistor Value (a)
5V dc	35 2 Ω
12 V dc	1382 Ω
24 V dc	3147 Ω

(a) Resistance values may change, depending on your application. The minimum resistor (R) value depends on the current sinking capability of the sensor. Refer to your sensor's documentation.

**1769-IA16**

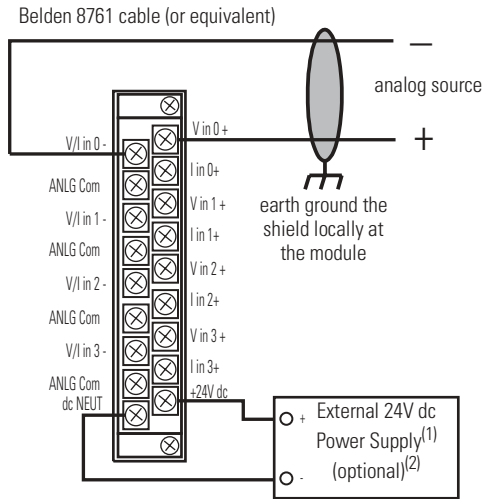


**1769-IA8I**



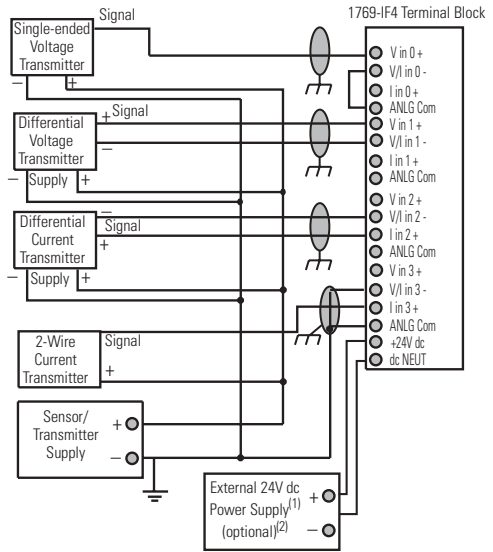


### 1769-IF4 – Differential Inputs applications



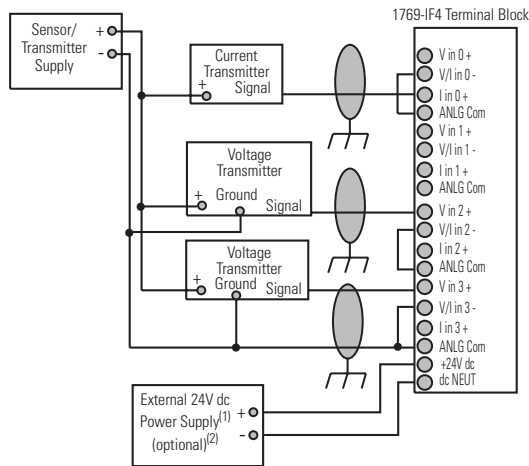
1. The external power supply must be rated Class 2, with a 24V dc range of 20.4 to 26.4V dc and 60 mA minimum.
2. Series B and later modules provide this option.

### 1769-IF4 – Mixed Transmitter Type applications



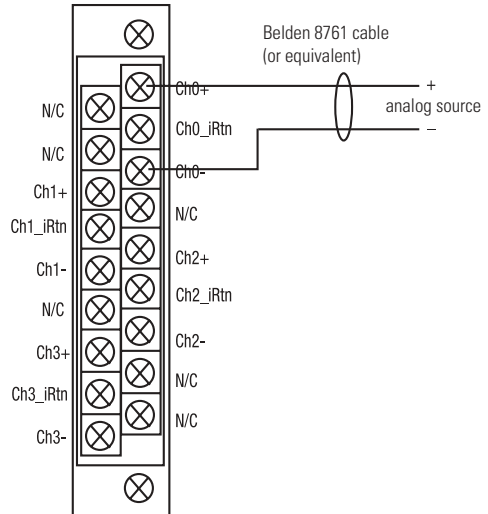
1. The external power supply must be rated Class 2, with a 24V dc range of 20.4 to 26.4V dc and 60 mA minimum.
2. Series B and later modules provide this option.

### 1769-IF4 – Single-Ended Sensor/Transmitter Type applications

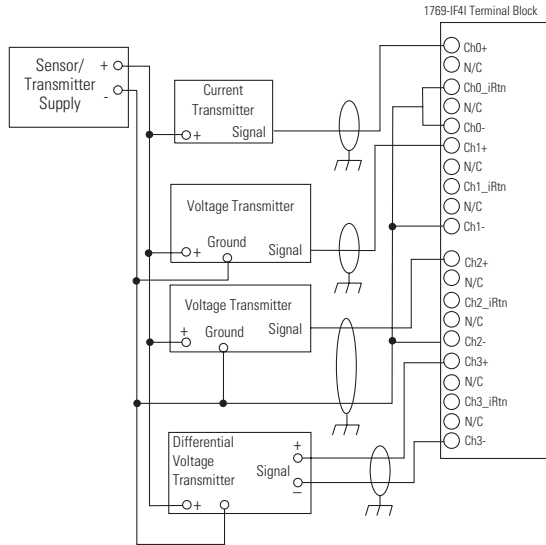


1. The external power supply must be rated Class 2, with a 24V dc range of 20.4 to 26.4V dc and 60 mA minimum.
2. Series B and later modules provide this option.

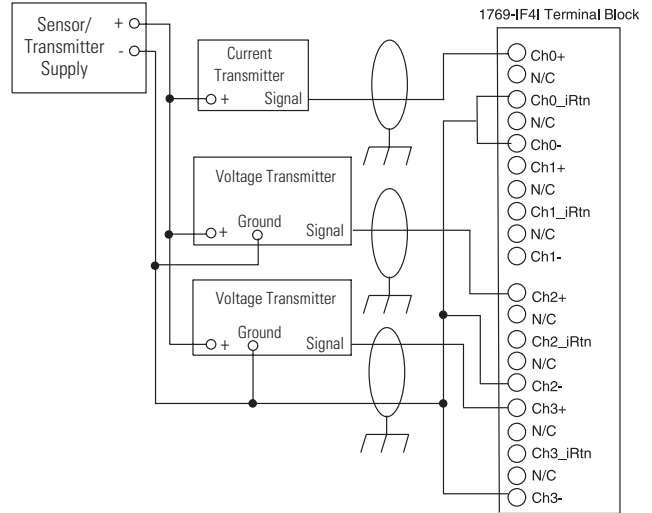
### 1769-IF4I – Differential Inputs applications



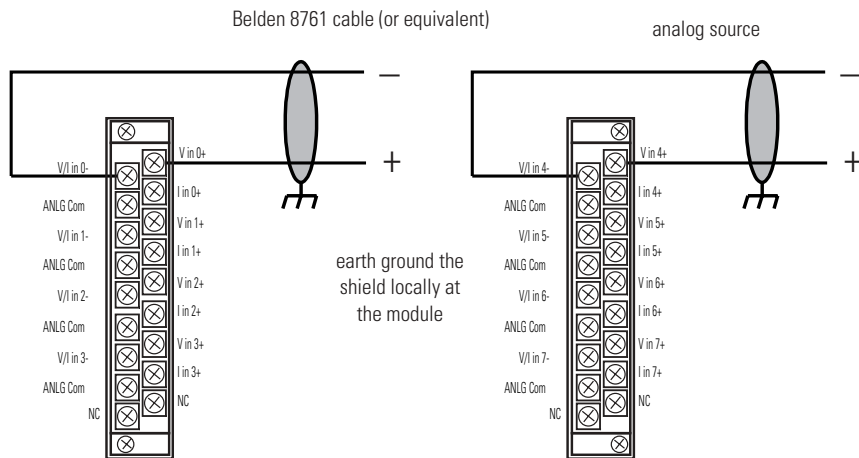
**1769-IF4I – Mixed Transmitter Type applications**



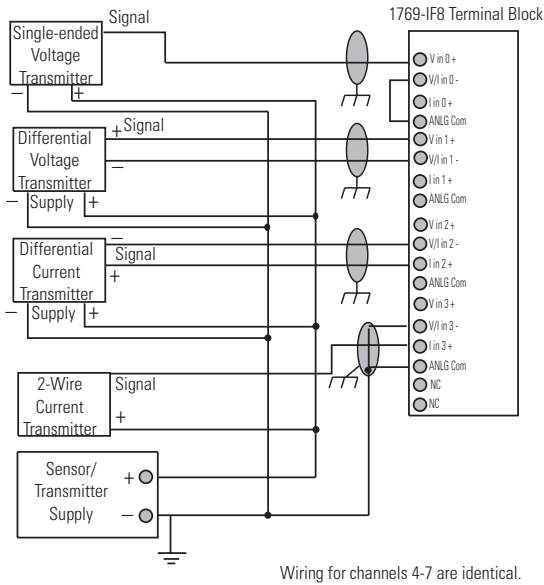
**1769-IF4I – Single-Ended Sensor/Transmitter Type applications**



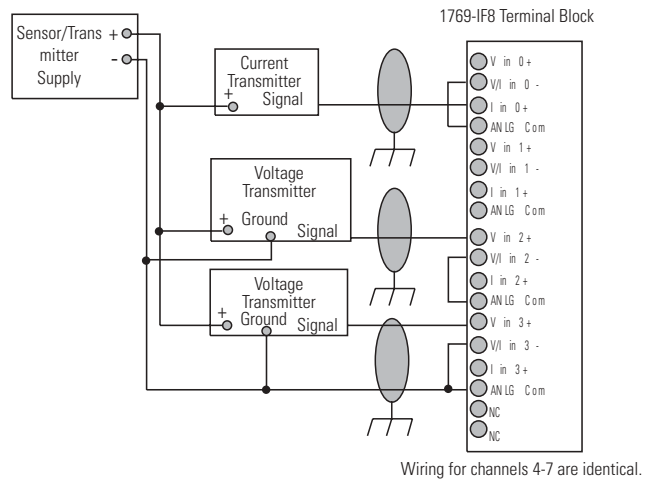
**1769-IF8 – Differential Inputs applications**



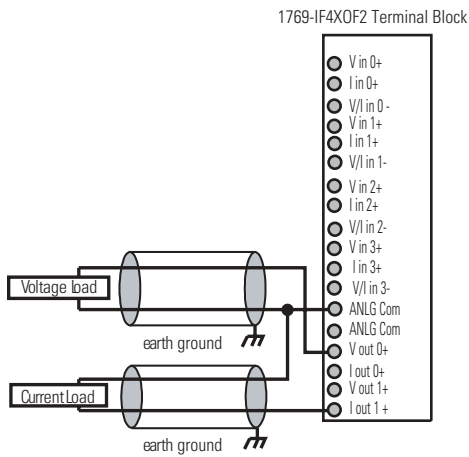
**1769-IF8 – Mixed Transmitter Type applications**



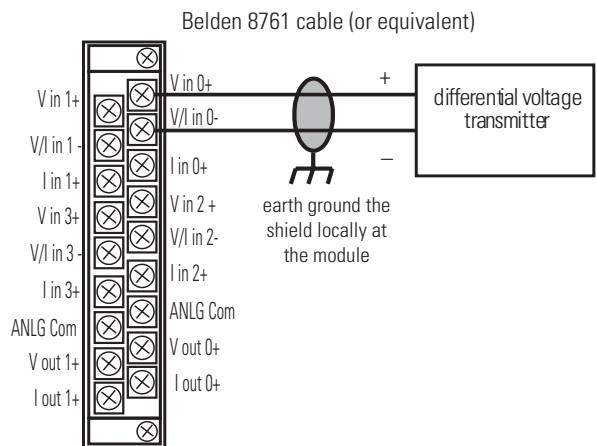
**1769-IF8 – Single-Ended Sensor/Transmitter Type applications**



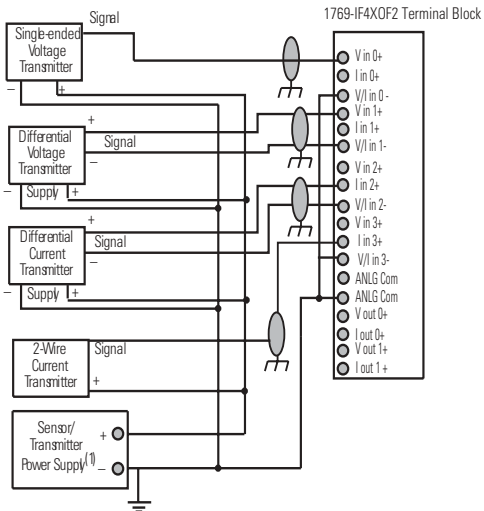
**1769-IF4XOF2 – Analog Output Device applications**



**1769-IF4XOF2 – Differential Input applications**

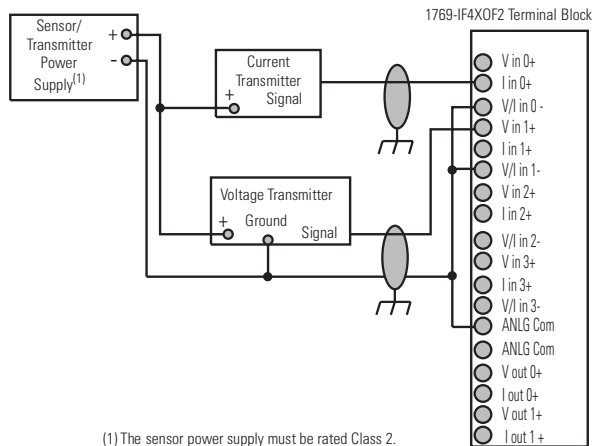


**1769-IF4XOF2 – Mixed Transmitter Type applications**



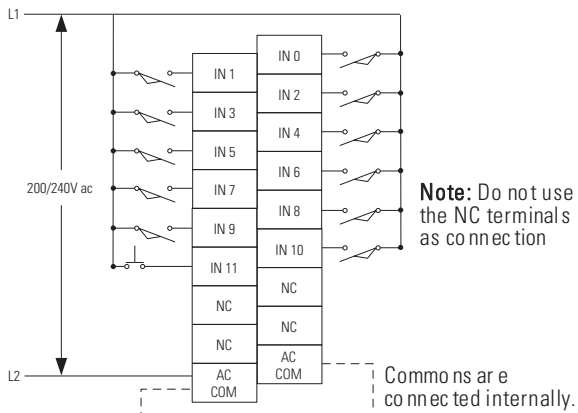
1. The sensor power supply must be rated Class 2.

**1769-IF4XOF2 – Single-Ended Sensor/Transmitter applications**

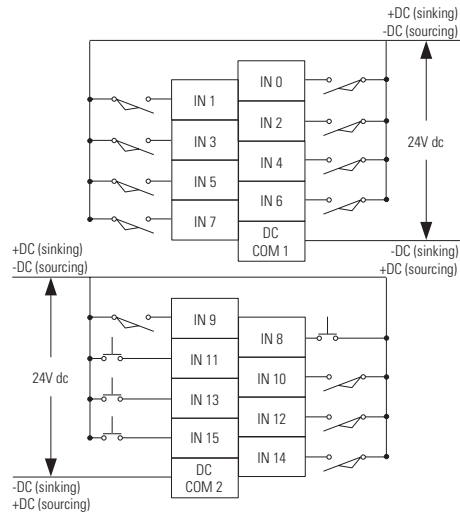


(1) The sensor power supply must be rated Class 2.

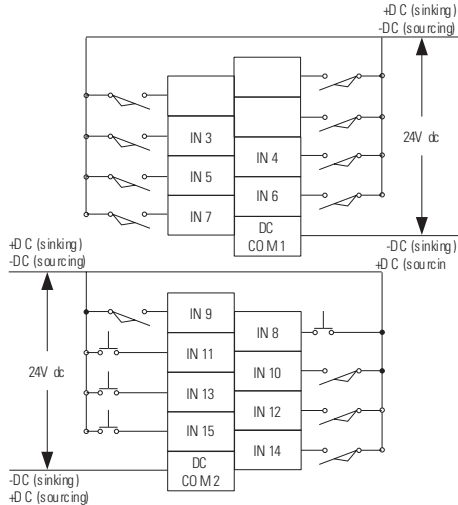
**1769-IM12**



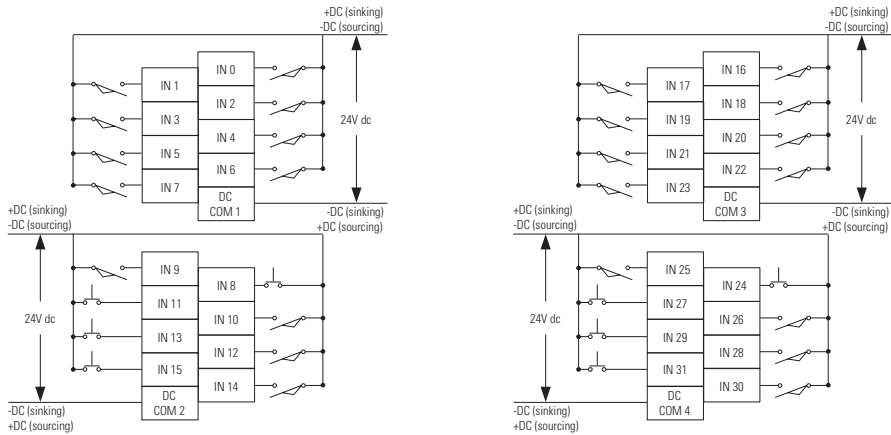
**1769-IQ16**



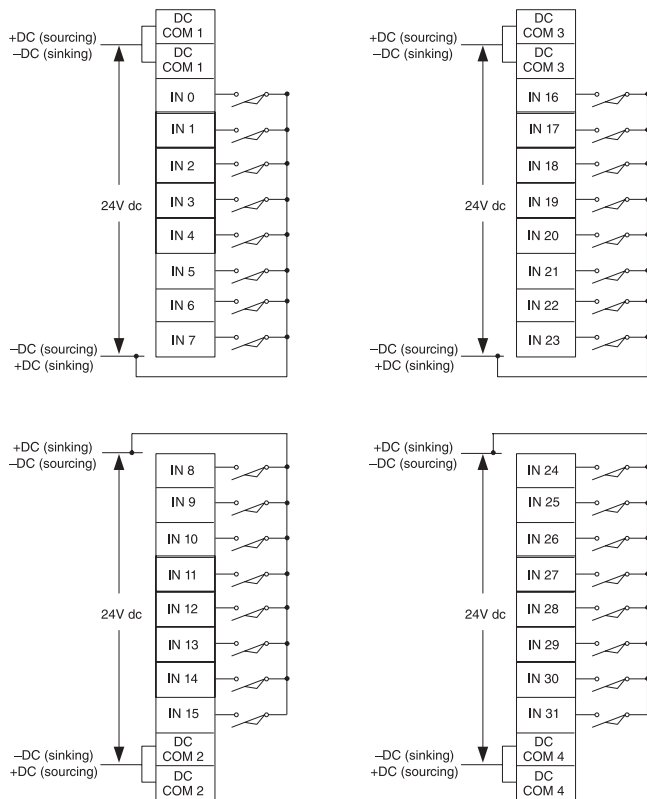
1769-IQ16F



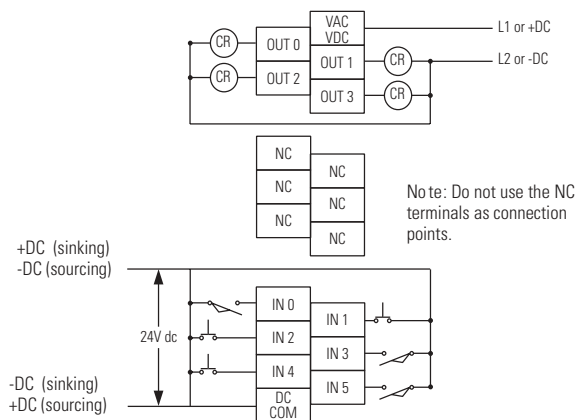
1769-IQ32



**1769-IQ32T**



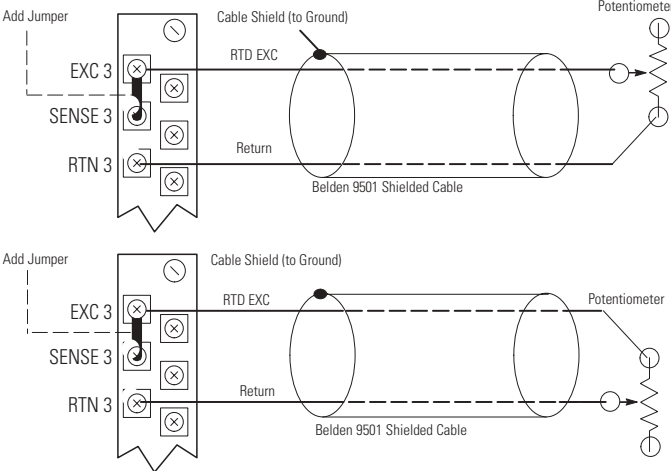
**1769-IQ6XOW4**



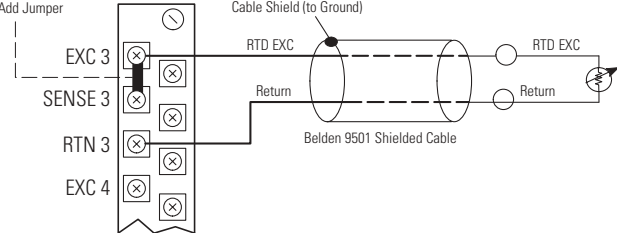
Note: Do not use the NC terminals as connection points.

- (1) Surge Suppression - Connecting surge suppressors across your external inductive load will extend the life of the relay contacts. For additional details, refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1.
- (2) Sinking/Sourcing Inputs - Sourcing/sinking describes the current flow between the I/O module and the field device. Sourcing input circuits supply (source) current to sinking field devices. Sinking input circuits are driven by a current sourcing field device. Europe: DC sinking input and sourcing output module circuits are the commonly used options.

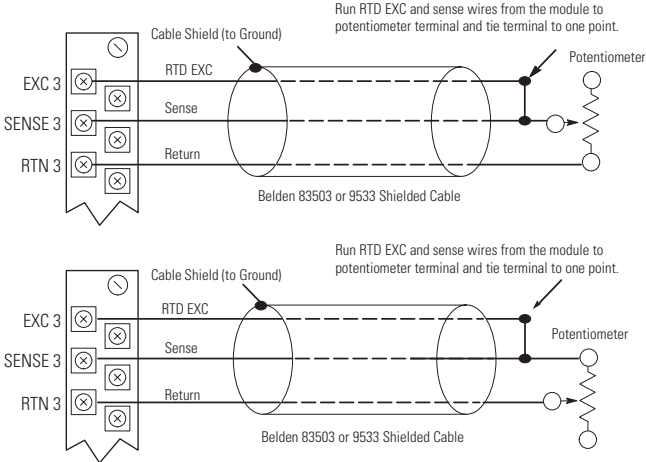
**1769-IR6 – 2-Wire Potentiometer Interconnection applications**



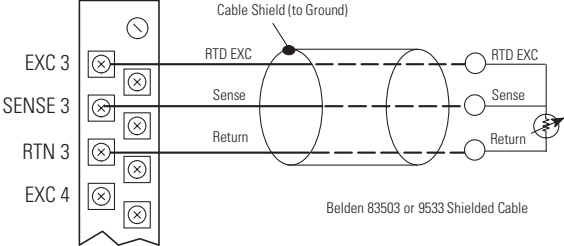
**1769-IR6 – 2-Wire RTD applications**



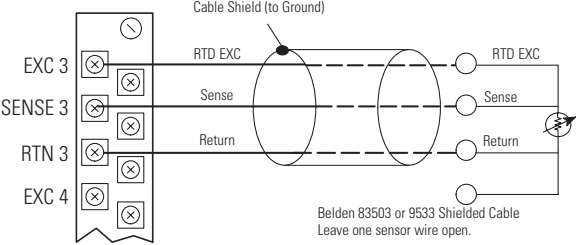
**1769-IR6 – 3-Wire Potentiometer Interconnection applications**



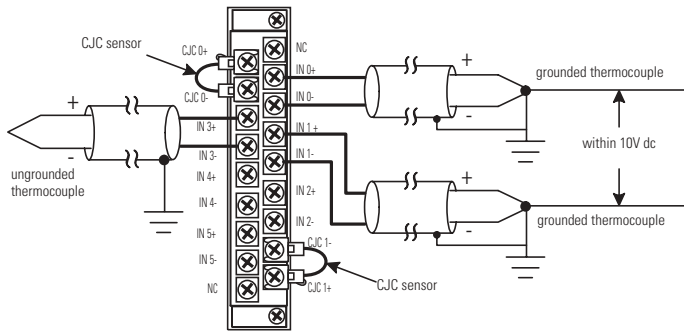
**1769-IR6 – 3-Wire RTD applications**



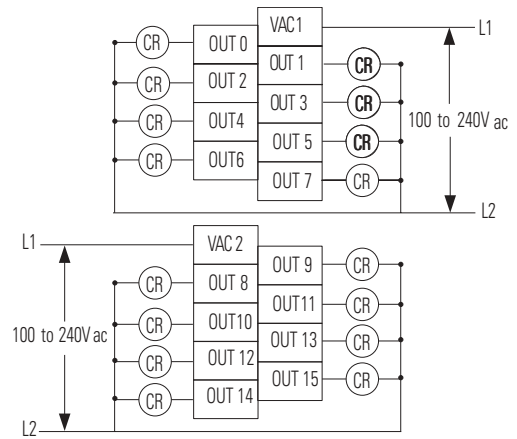
**1769-IR6 – 4-Wire RTD applications**



1769-IT6

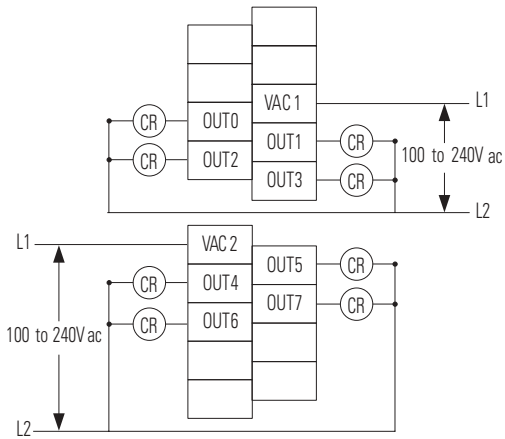


1769-OA16

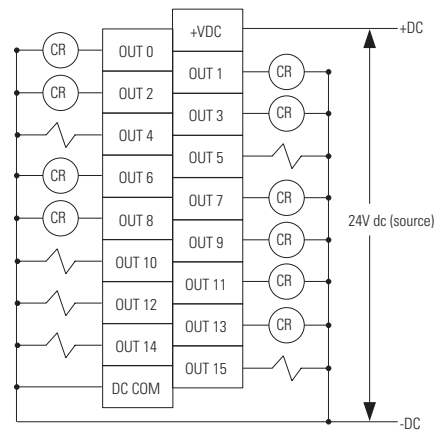


- (1) Surge Suppression - Connecting surge suppressors across your external load will extend the life of the triac outputs. For additional details, refer to Industrial Automation Wiring and Grounding Guidelines, Allen-Bradley publication 1770-4.1.

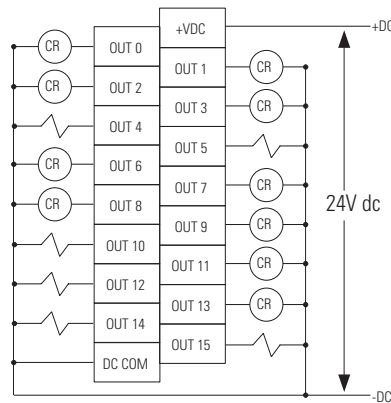
1769-OA8



1769-OB16

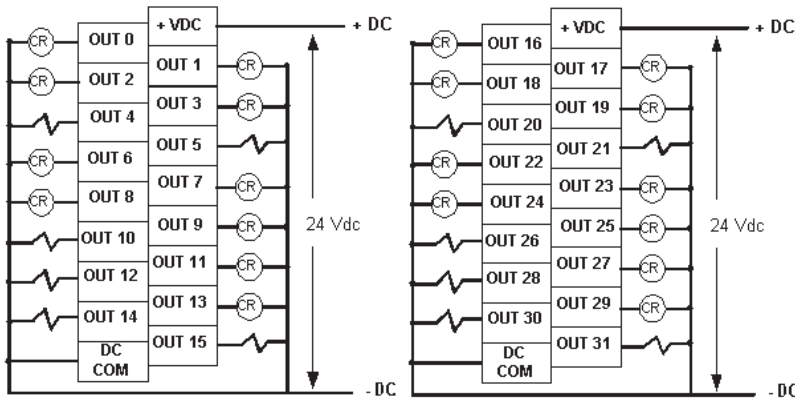


1769-OB16P

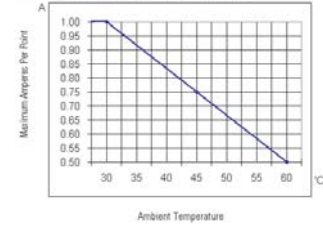




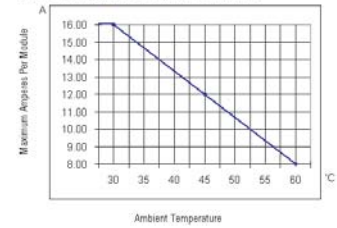
1769-OB32



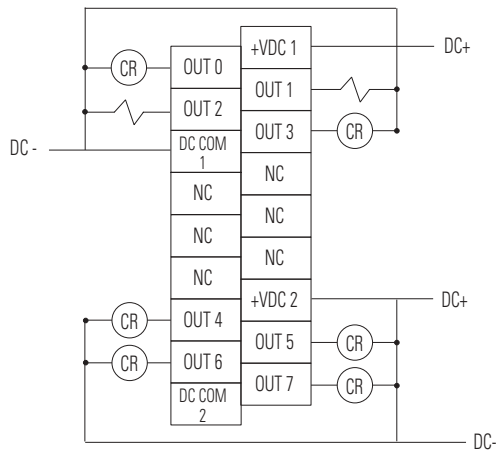
1769-OB32 Maximum Amperes per Point vs. Temperature



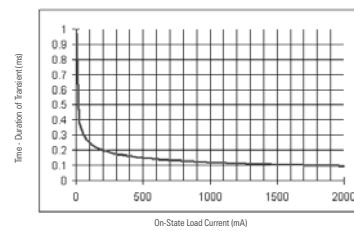
1769-OB32 Maximum Amperes per Module vs. Temperature



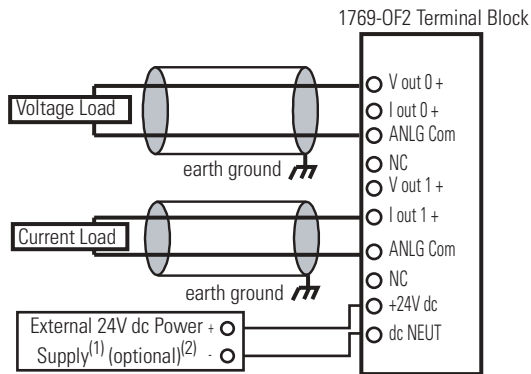
1769-OB8



Transient Pulse Duration as a Function of Load Current

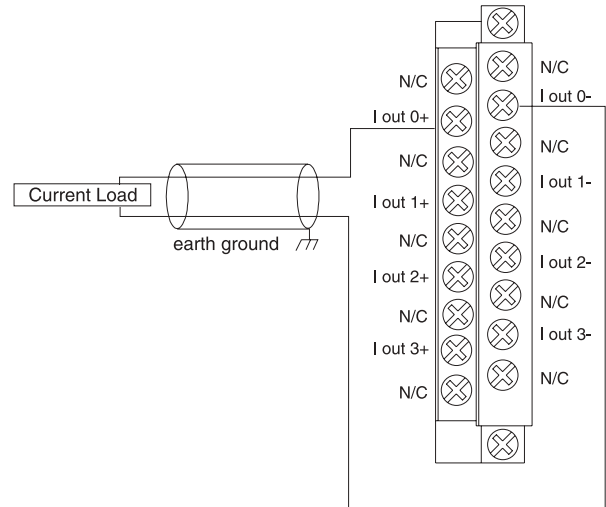


**1769-OF2**

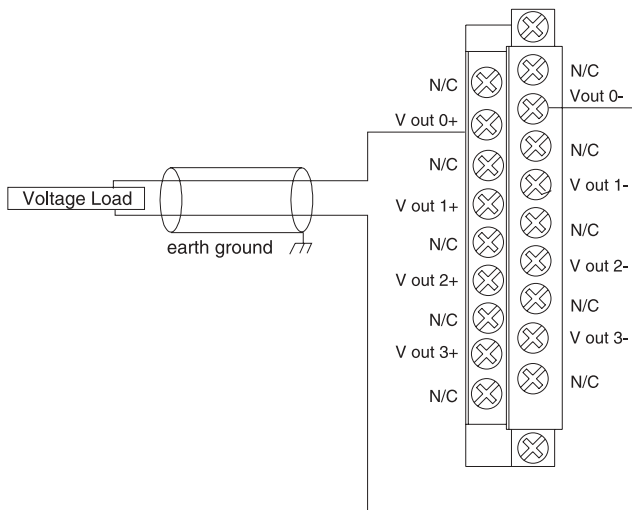


1. The external power supply must be rated Class 2, with a 24V dc range of 20.4 to 26.4V dc and 60 mA minimum.
2. Series B and later modules provide this option.

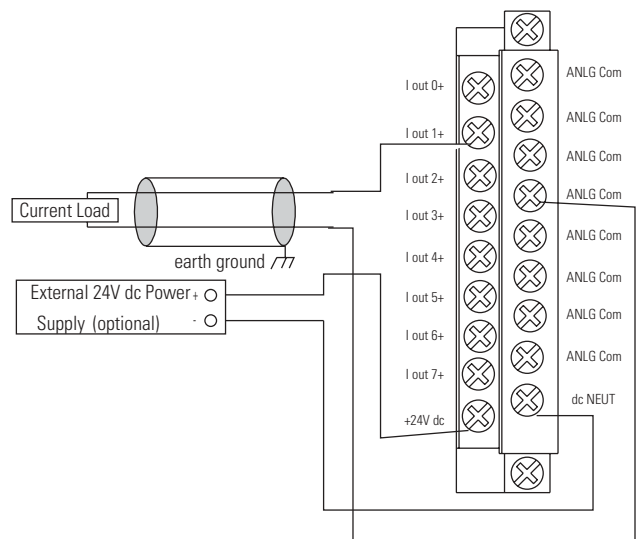
**1769-OF4CI**



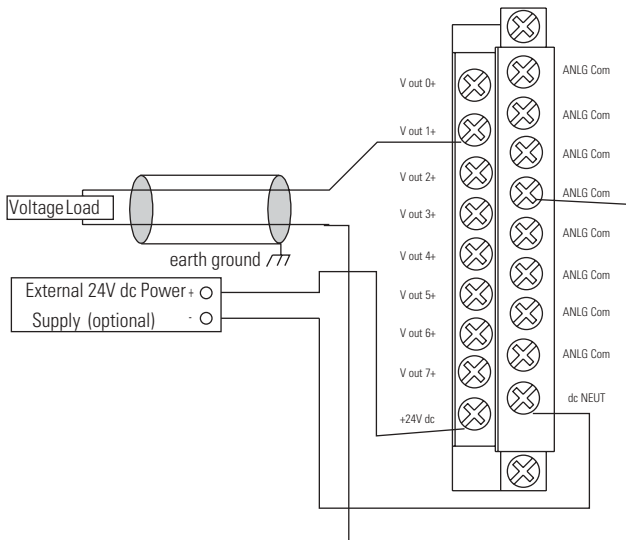
**1769-OF4VI**



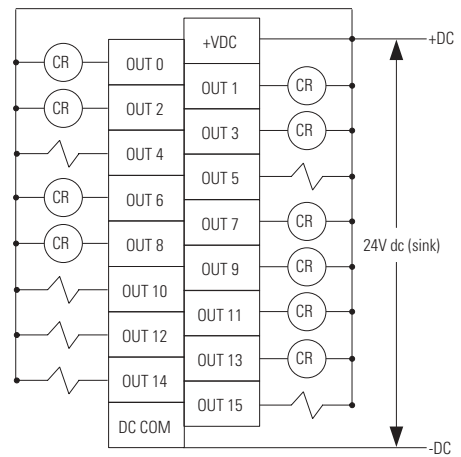
**1769-OF8C**



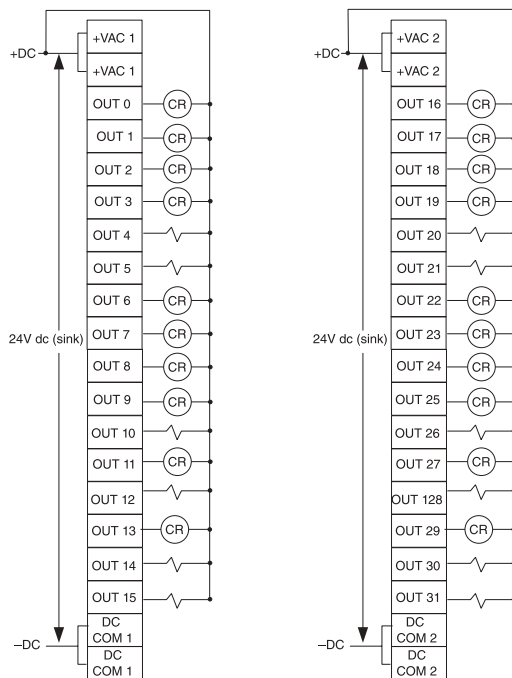
1769-OF8V



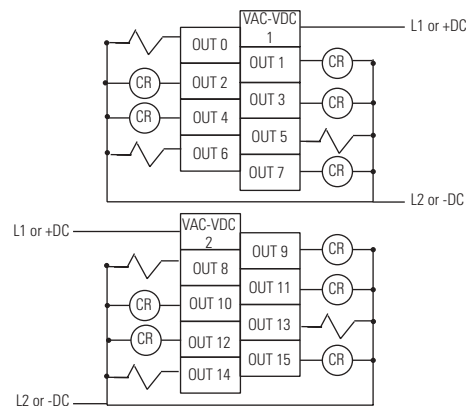
1769-OV16



1769-OV32T

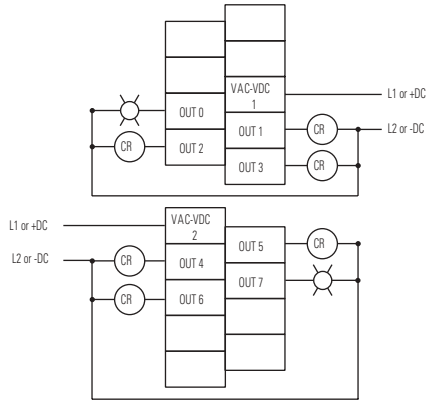


1769-OW16

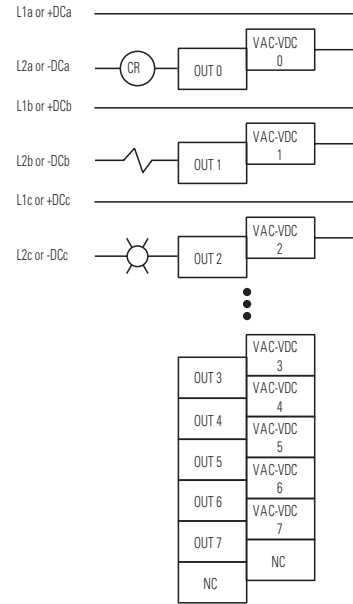


- (1) Surge Suppression - Connecting surge suppressors across your external inductive load will extend the life of the relay contacts. For additional details, refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

**1769-OW8**

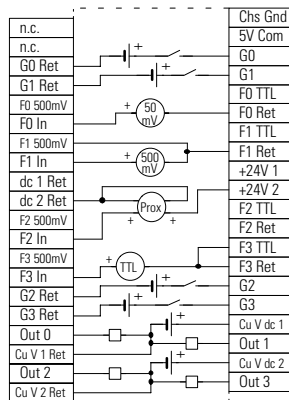


**1769-OW8I**

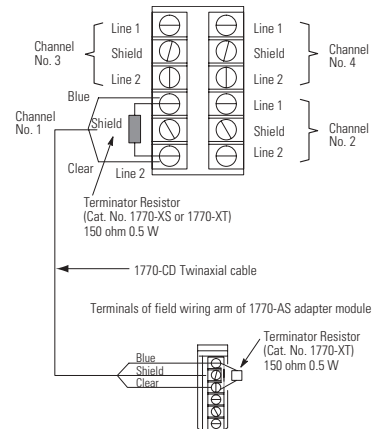


## 1771 I/O Modules

### 1771-CFM



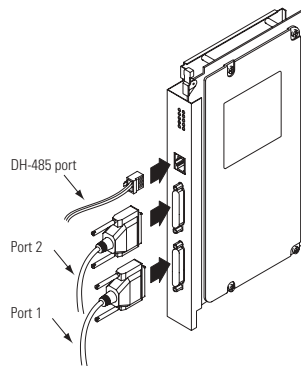
### 1771-DA



NOTE: Absence of a terminator resistor can cause block transfer errors

### 1771-DB

Ports 1 and 2 can be configured for RS-232, RS-422 and RS-485 communications. pin configurations for these modes are listed in the table below.

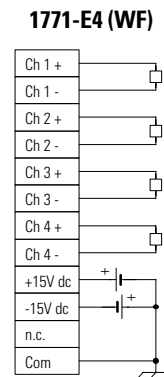
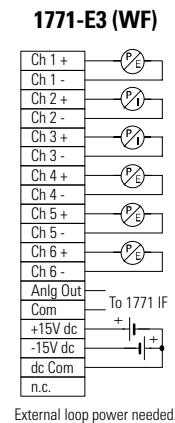
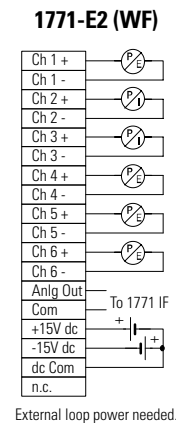
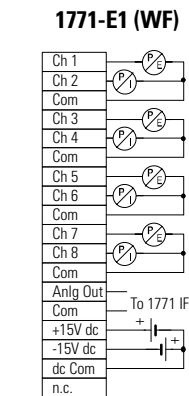
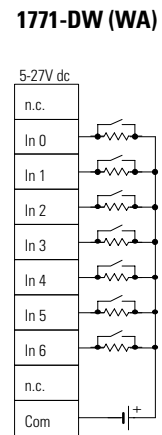
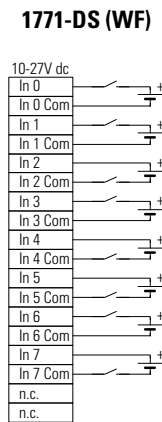
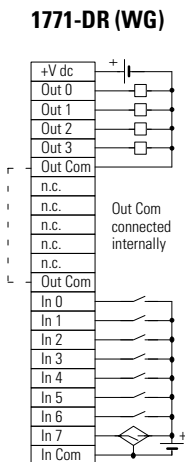
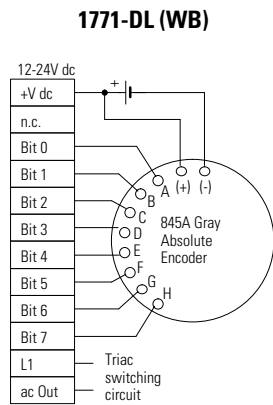
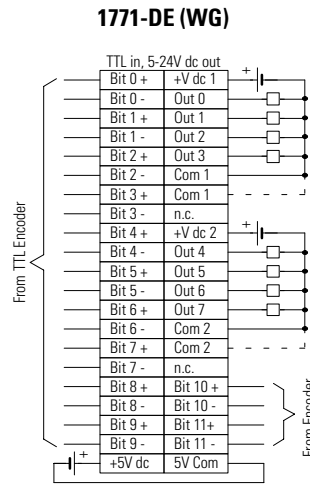
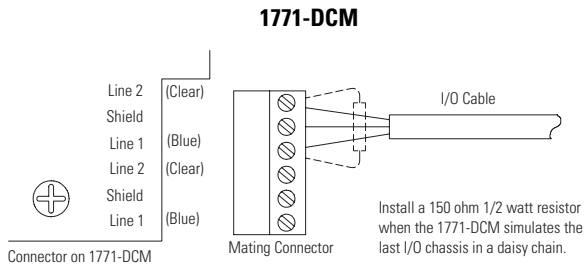


Pin	RS-232	RS-422	RS-485
1	chassis/shield	chassis/shield	chassis/shield
2	TXD	N/A <sup>2</sup>	N/A <sup>2</sup>
3	RXD	N/A <sup>2</sup>	N/A <sup>2</sup>
4	RTS	N/A <sup>2</sup>	N/A <sup>2</sup>
5	CTS	N/A <sup>2</sup>	N/A <sup>2</sup>
6	DSR	N/A <sup>2</sup>	N/A <sup>2</sup>
7	common	common	common
8	DCD	N/A <sup>2</sup>	N/A <sup>2</sup>
9	common	common	common
10	common	common	common
14	N/A <sup>1</sup>	TXD	TXD/RXD
16	N/A <sup>1</sup>	RXD	N/A <sup>2</sup>
18	N/A <sup>1</sup>	RXD'	N/A <sup>2</sup>
20	DTR	N/A <sup>2</sup>	N/A <sup>2</sup>
25	N/A <sup>1</sup>	TXD'	TXD'/RXD'

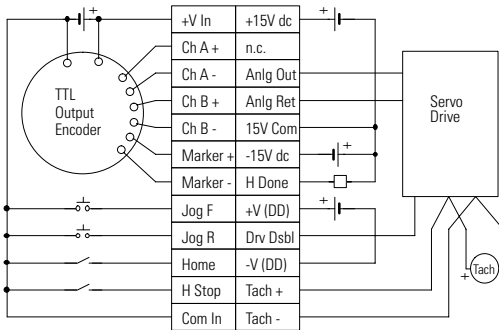
1- These pins are not a No Connection (N/C). In RS-232 mode, the RS-422 and RS-485 load is still present and should not be connected to any device in this mode.

2- In RS-422 and RS-485 modes, these pins are still connected to their RS-232 drivers and receivers. Do not use these pins in either RS-422 or RS-485 mode.

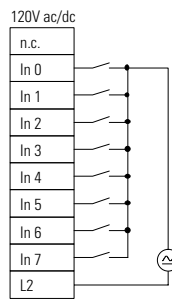
Important: Pins 1, 12, 13, 15, 17, 19, 21, 22, 23 and 24 are a No Connection (N/C)



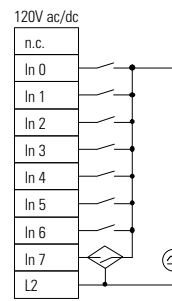
**1771-ES (WB)**



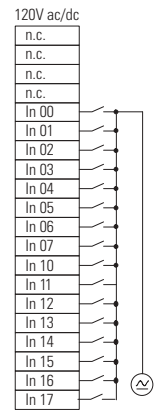
**1771-IA (WA)**



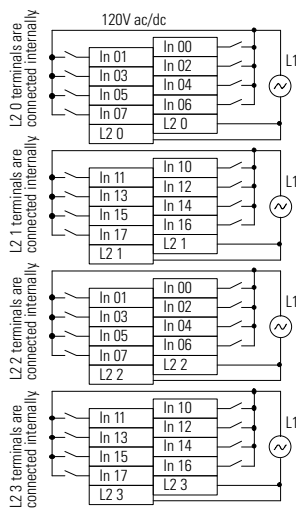
**1771-IA2 (IA)**



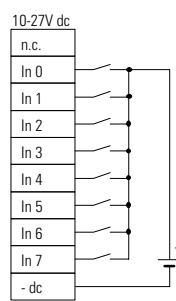
**1771-IAD/C (WH)**



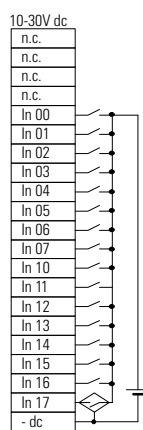
**1771-IAN (WN)**



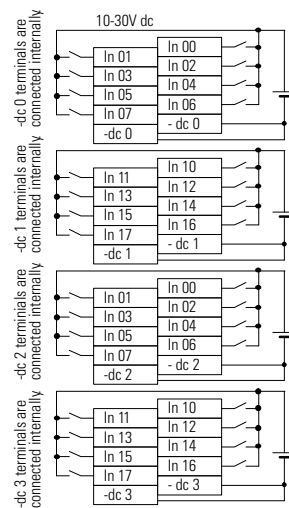
**1771-IB (WA)**



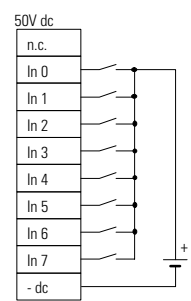
**1771-IBD (WH)**



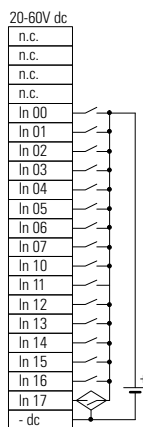
**1771-IBN (WN)**



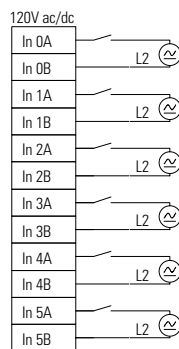
**1771-IC (WA)**



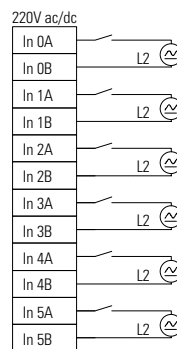
**1771-ICD (WH)**



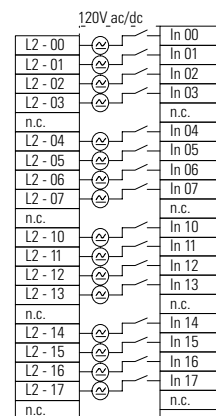
**1771-IDI (WD)**

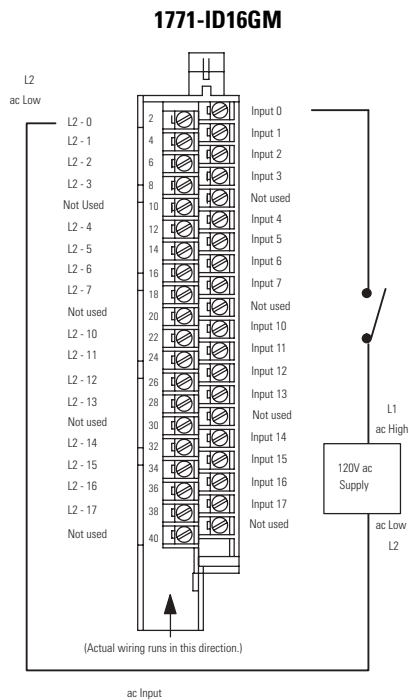


**1771-ID01 (WD)**

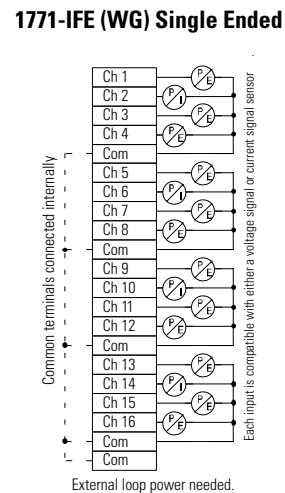
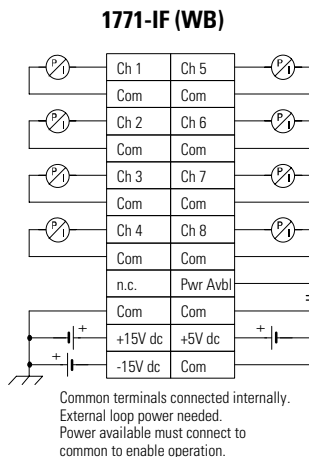
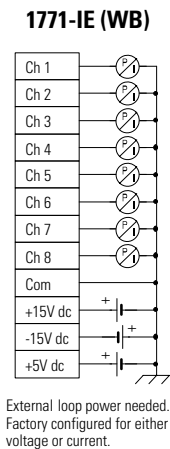


**1771-ID16 (WN)**

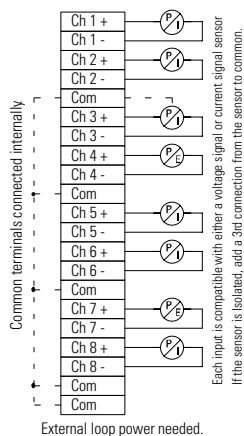




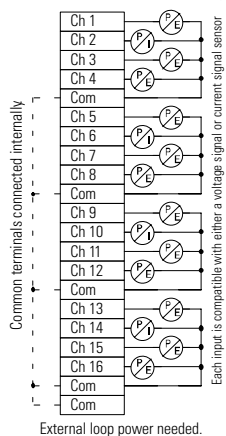
NOTES: Maintain isolation between phases to prevent module damage.  
 Do not use any 1771 ac output modules to drive the 1771-ID16GM input module.



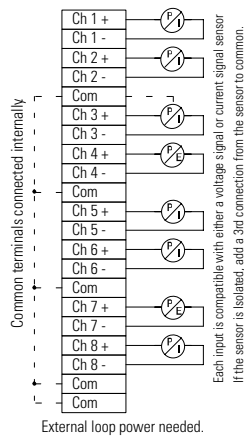
### 1771-IFE (WG) Differential



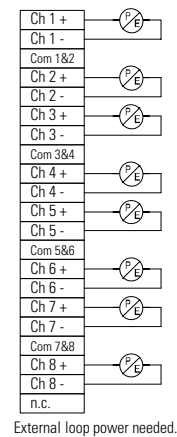
### 1771-IFF (WG) Single Ended



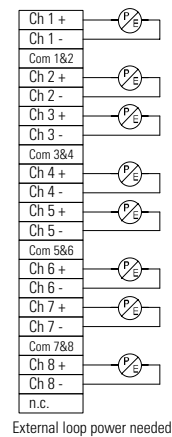
### 1771-IFF (WG) Differential



### 1771-IFM (WG)

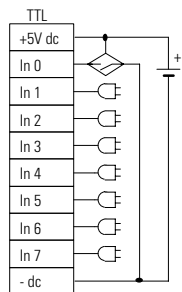


### 1771-IFMS (WG)

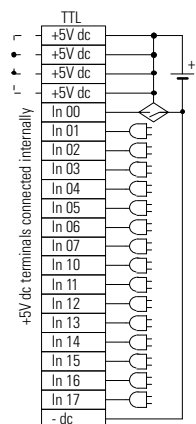




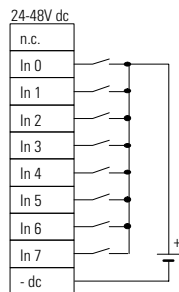
**1771-IG (WC)**



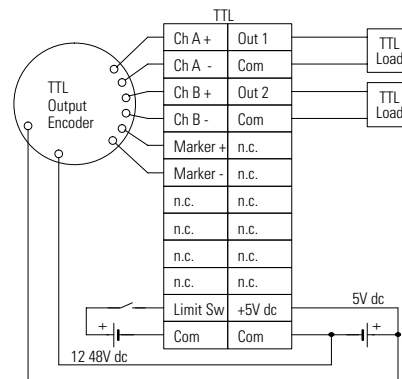
**1771-IGD (WH)**



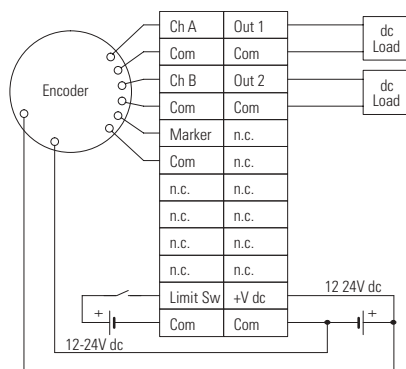
**1771-IH (WA)**



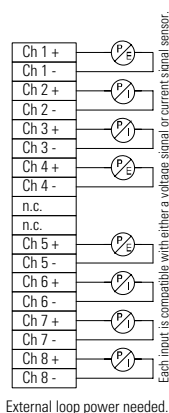
**1771-IJ (WB)**



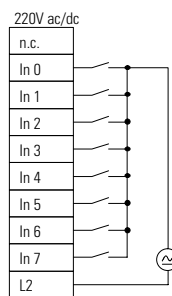
**1771-IK (WB)**



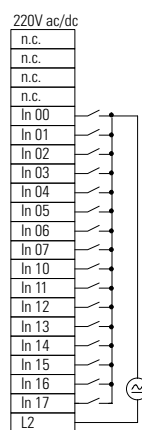
**1771-IL/B (WF)**



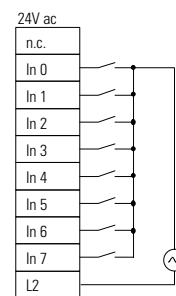
**1771-IM (WA)**



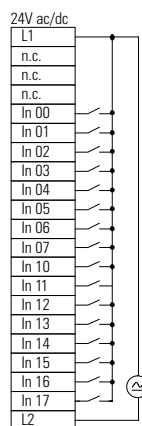
**1771-IMD (WH)**



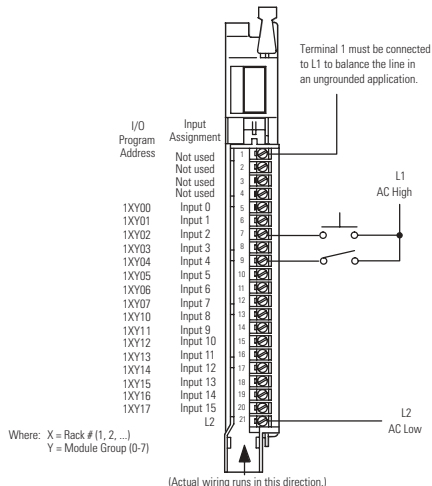
**1771-IN (WA)**



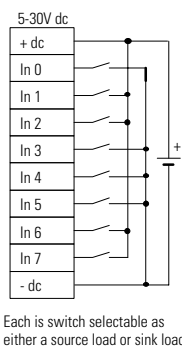
**1771-IND (WH)**



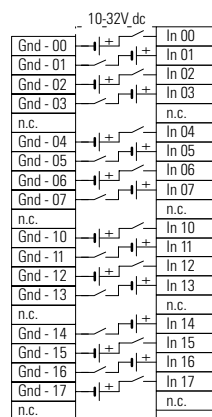
**1771-IND1**



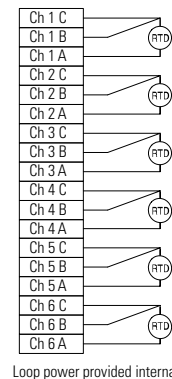
**1771-IQ (WC)**



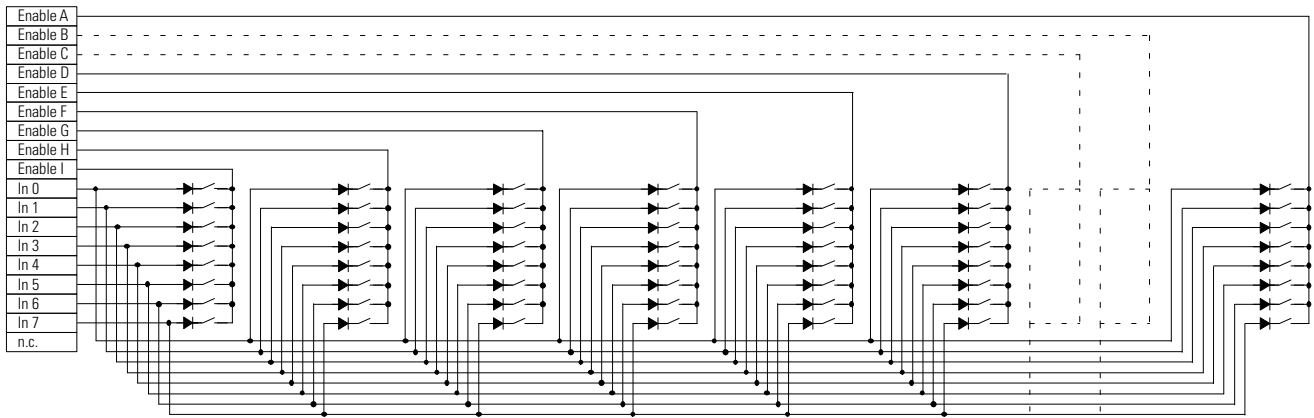
**1771-IQ16 (WN)**



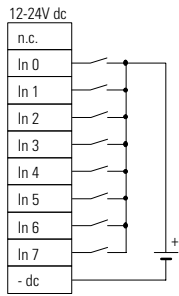
**1771-IR/B (WF)**



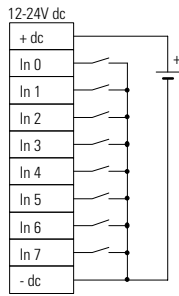
1771-IS (WF)



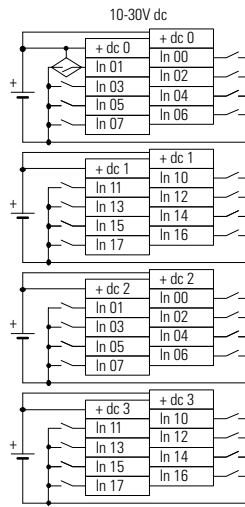
1771-IT (WA)



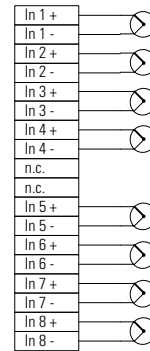
1771-IV (WA)



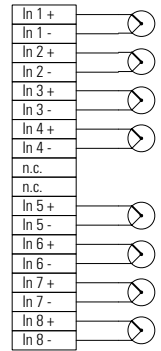
1771-IVN (WN)



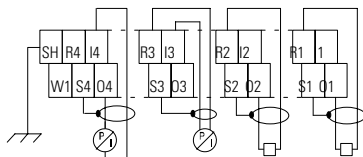
1771-IXE/B (WI)



1771-IXHR (WI)

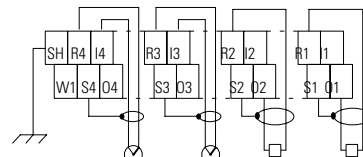


1771-NB4S (RT44)



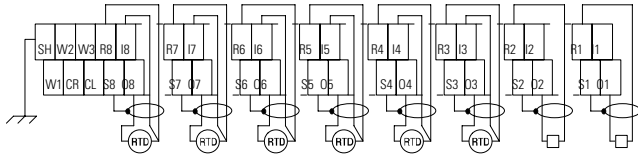
S1 thru S4 are connected internally to SH.  
Input loop power provided internally if connected as shown for 4.

1771-NB4T (RT41)



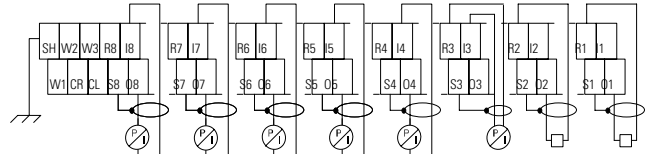
S1 thru S4 are connected internally to SH.

**1771-NBRC (RTP4)**



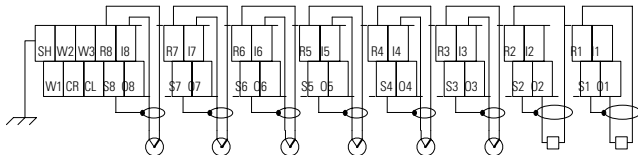
S1 thru S8 are connected internally to SH. Input loop power provided internally.

**1771-NBSC (RTP4)**



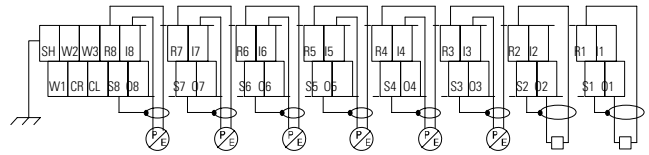
S1 thru S8 are connected internally to SH. Input loop power provided internally if connected as shown for 4 thru 8.

**1771-NBTC (RTP1)**



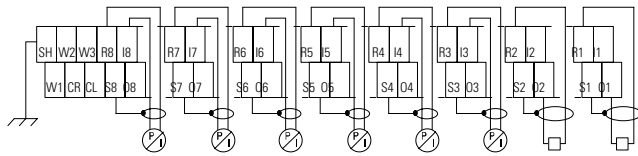
S1 thru S8 are connected internally to SH.

**1771-NBV1 (RTP4 Voltage, RTP3 Current)**



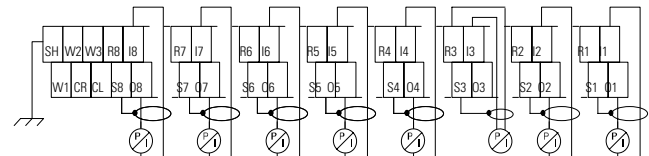
S1 thru S8 are connected internally to SH. External loop power needed.

**1771-NBVC (RTP4 Voltage, RTP3 Current)**



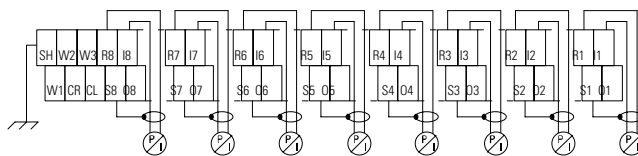
S1 thru S8 are connected internally to SH. External loop power needed.

**1771-NIS (RTP4)**



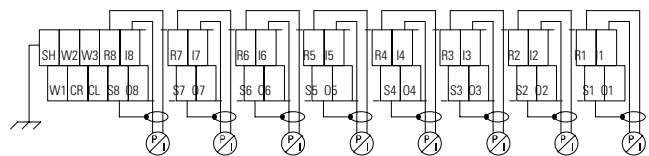
S1 thru S8 are connected internally to SH. Input loop power provided internally if connected as shown for 4 thru 8.

**1771-NIV (RTP4 Voltage, RTP3 Current)**



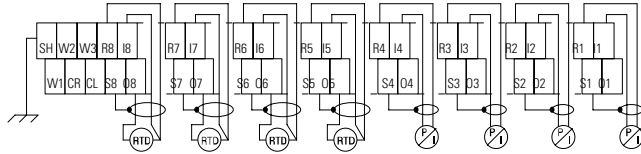
S1 thru S8 are connected internally to SH. External loop power needed.

**1771-NIV1 (RTP4 Voltage, RTP3 Current)**



S1 thru S8 are connected internally to SH. External loop power needed.

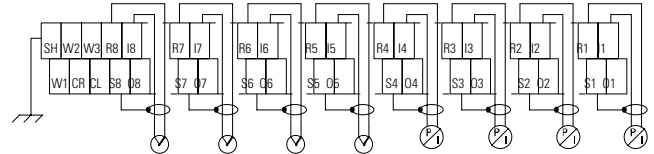
**1771-NIVR (RTP4)**



S1 thru S8 are connected internally to SH.

External loop power needed.

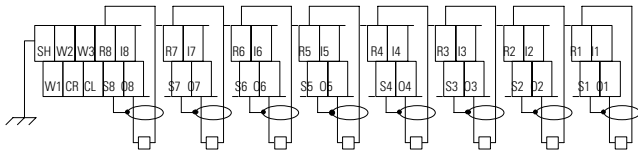
**1771-NIVT (RTP1)**



S1 thru S8 are connected internally to SH.

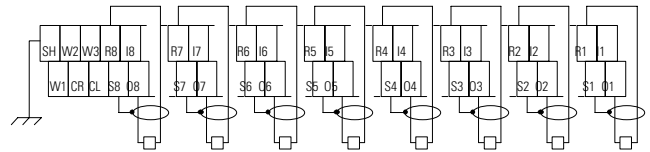
External loop power needed.

**1771-NOC (RTP4 or RTP3)**



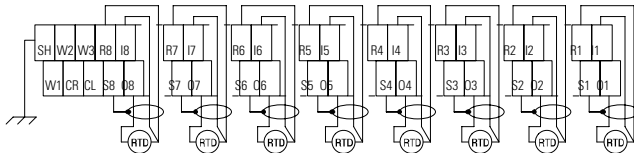
S1 thru S8 are connected internally to SH.

**1771-NOV (RTP4 or RTP3)**



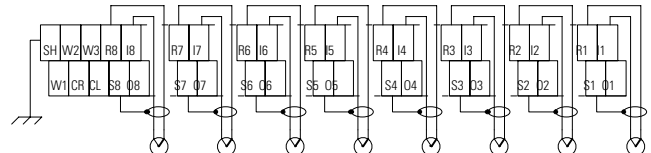
S1 thru S8 are connected internally to SH.

**1771-NR (RTP4)**



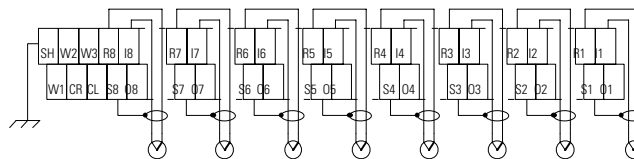
S1 thru S8 are connected internally to SH. Input loop power provided internally.

**1771-NT1 (RTP1)**



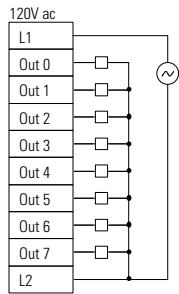
S1 thru S8 are connected internally to SH.

**1771-NT2 (RTP1)**

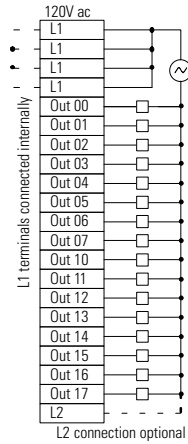


S1 thru S8 are connected internally to SH.

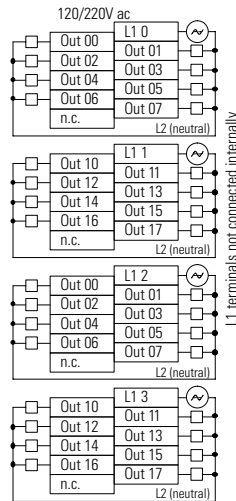
**1771-0A (WA)**



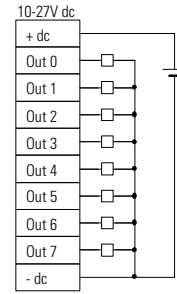
**1771-0AD (WH)**



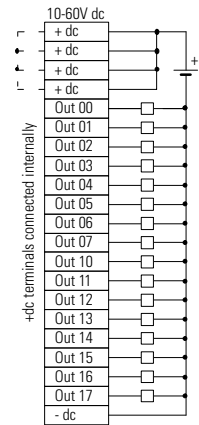
**1771-0AN (WN)**



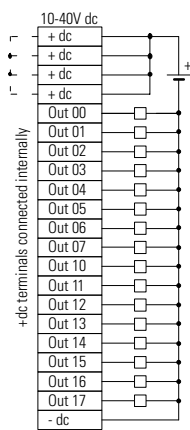
**1771-0B (WA)**



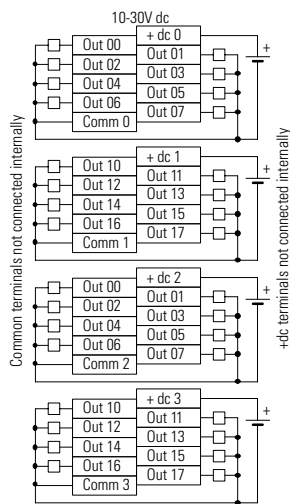
**1771-0BD (WH)**



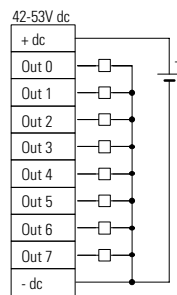
**1771-0BDS (WH)**



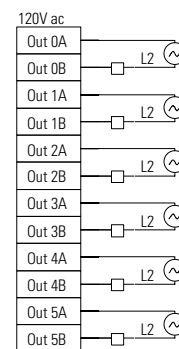
**1771-0BN (WN)**



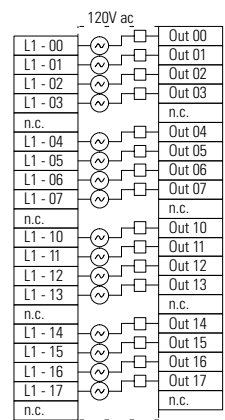
**1771-0C (WA)**



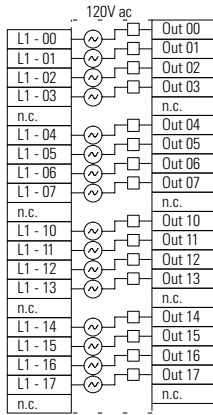
**1771-0D (WD)**



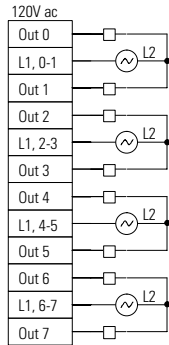
**1771-0D16 (WN)**



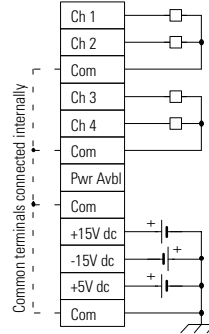
**1771-ODD (WN)**



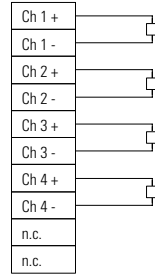
**1771-ODZ (WD)**



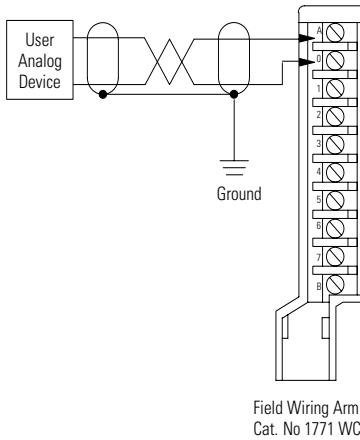
**1771-OF/B (WB)**



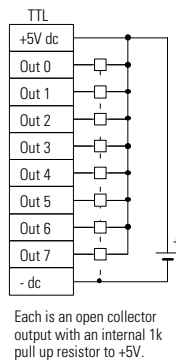
**1771-OFE (WC)**



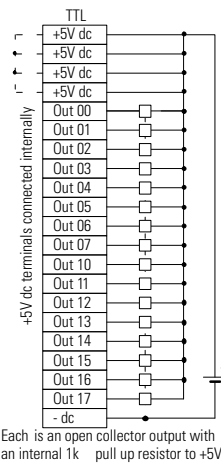
**1771-OFE1, -OFE2, -OFE3**



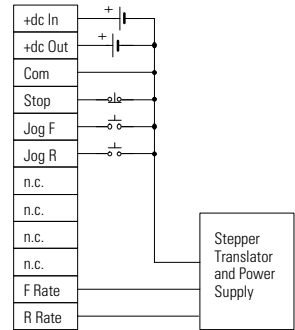
**1771-OG (WC)**



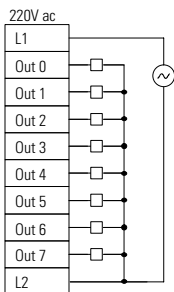
**1771-OGD (WH)**



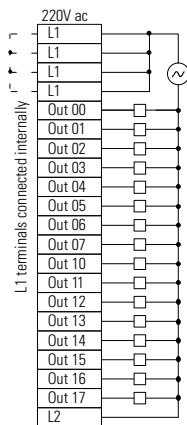
**1771-OJ (WB)**



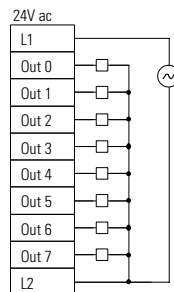
**1771-OM (WA)**



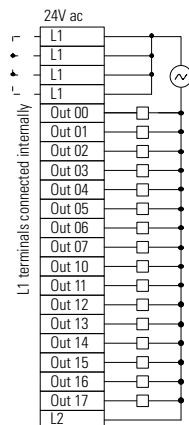
**1771-OMD (WH)**



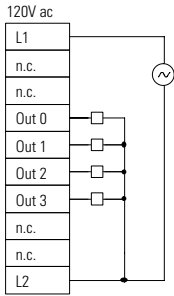
**1771-ON (WA)**



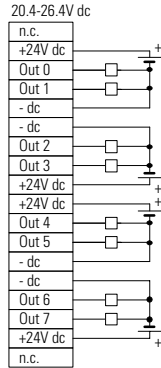
**1771-OND (WH)**



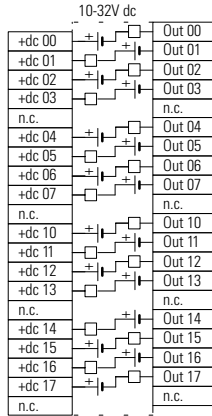
**1771-OP (WA)**



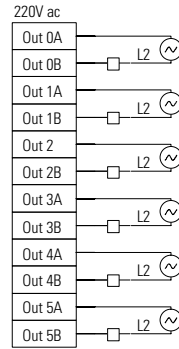
**1771-OQ (WF)**



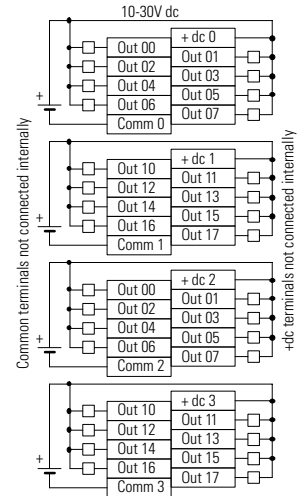
**1771-OQ16 (WN)**



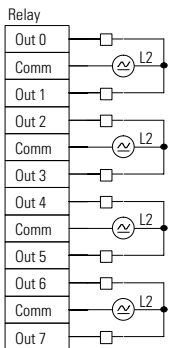
**1771-OR (WD)**



**1771-OVN (WN)**

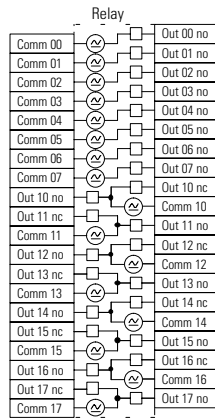


**1771-OW (WD)**

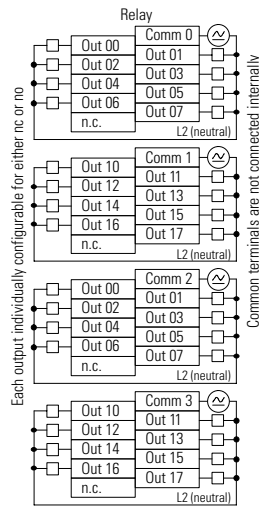


Each output individually configurable for either normally open or normally closed.

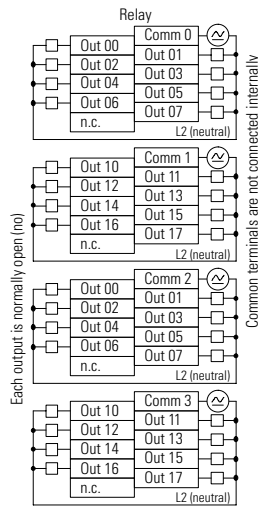
**1771-OW16/B (WN)**



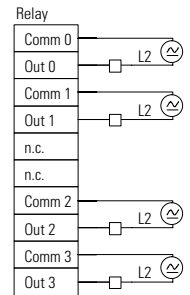
**1771-OWN (WN)**



**1771-OWNA (WN)**

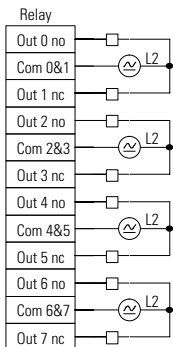


**1771-OX (WC)**

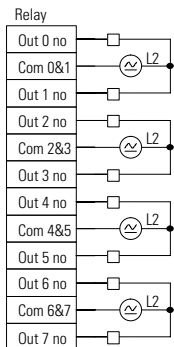


Each output individually configurable for either normally open or normally closed.

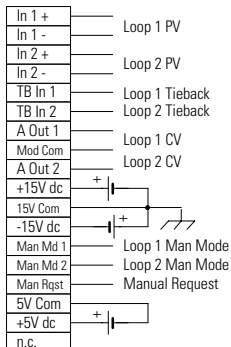
**1771-0YL (WD)**



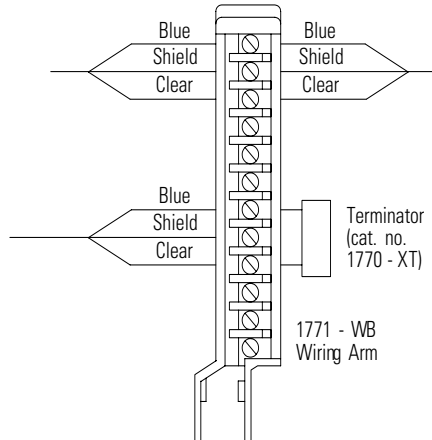
**1771-0ZL (WD)**



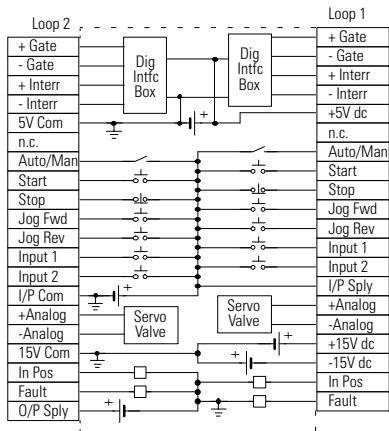
**1771-PD (WF)**



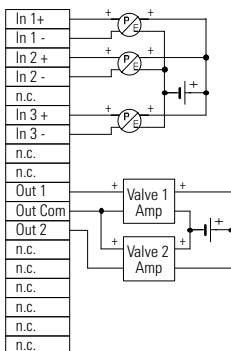
**1771-PM**



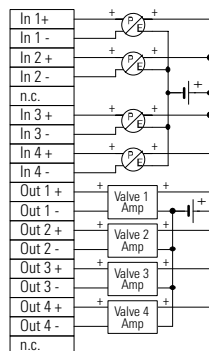
**1771-QB (WN)**



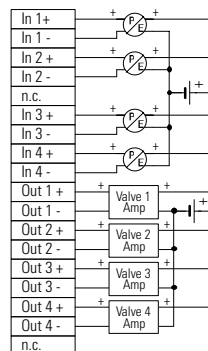
**1771-QD (WF)**



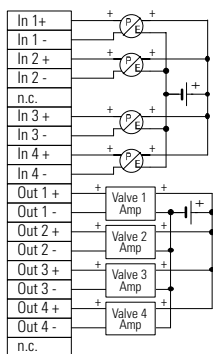
**1771-QDC (WF)**



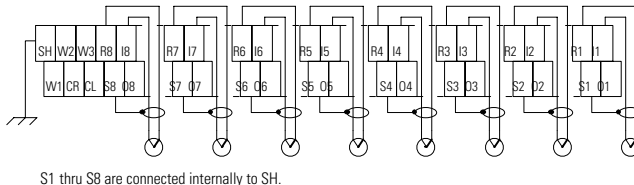
**1771-QH (WF)**



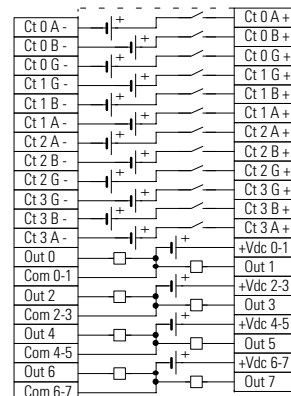
**1771-QI (WF)**



**1771-TCM (RTP1)**



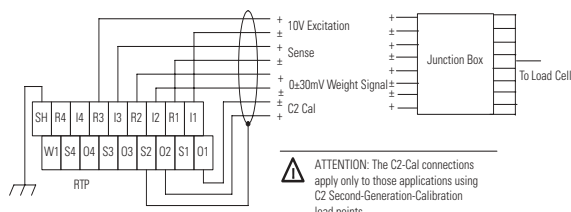
**1771-VHSC (WN)**





1771-WS

Connecting Wires from the Junction Box to the Remote Termination Panel - Using the



⚠ ATTENTION: The C2-Cal connections apply only to those applications using C2 Second-Generation-Calibration load points

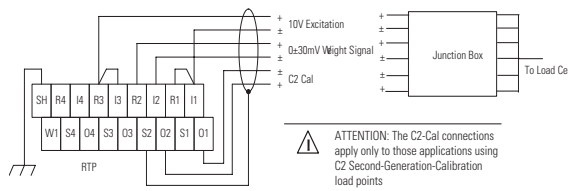
I1	± Excitation to junction box
R1	± Sense from junction box
S1	Shield
O1	± C2-Cal from junction box
I2	± Signal from junction box
R2	+ Signal from junction box
S2	Shield
O2	+ C2-Cal from junction box
I3	+ Sense from junction box

R3	+ Excitation to junction box
S3	Shield
O3	Not Used
I4	Not Used
R4	Not Used
S4	Shield
O4	Not Used
SH	Ground
W1	Not Used

<sup>1</sup> These connections apply only to those applications using C2 Second-Generation-Calibration load points. A sense loop is required when using C2 Second-Generation-Calibration.

1771-WS

Connecting Wires from the Junction Box to the Remote Termination Panel - With the Module-Generated



⚠ ATTENTION: The C2-Cal connections apply only to those applications using C2 Second-Generation-Calibration load points

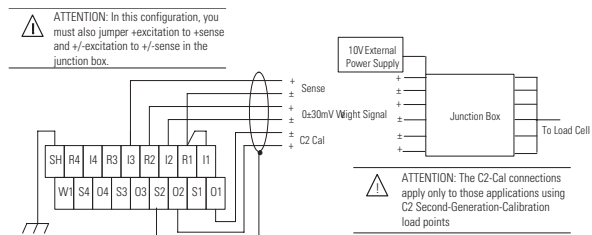
I1	± Excitation to junction box
R1	I1 on RTP
S1	Shield
O1	± C2-Cal from junction box <sup>1</sup>
I2	± Signal from junction box
R2	+ Signal from junction box
S2	Shield
O2	+ C2-Cal from junction box <sup>1</sup>
I3	R3 on RTP

R3	+ Excitation to junction box
S3	Shield
O3	Not Used
I4	Not Used
R4	Not Used
S4	Shield
O4	Not Used
SH	Ground
W1	Not Used

<sup>1</sup> These connections apply only to those applications using C2 Second-Generation-Calibration load points. A sense loop is required when using C2 Second-Generation-Calibration.

1771-WS

Connecting Wires from the Junction Box to the Remote Termination Panel - With the Voltage



⚠ ATTENTION: In this configuration, you must also jumper +excitation to +sense and +/-excitation to +/-sense in the junction box.

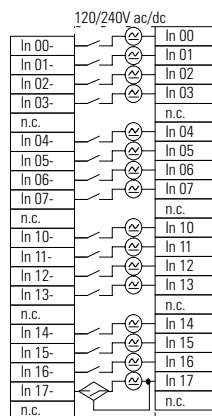
⚠ ATTENTION: The C2-Cal connections apply only to those applications using C2 Second-Generation-Calibration load points

I1	I on RTP
R1	± Sense from junction box
S1	Shield
O1	± C2-Cal from junction box <sup>1</sup>
I2	± Signal from junction box
R2	+ Signal from junction box
S2	Shield
O2	+ C2-Cal from junction box <sup>1</sup>
I3	+ Sense from junction box

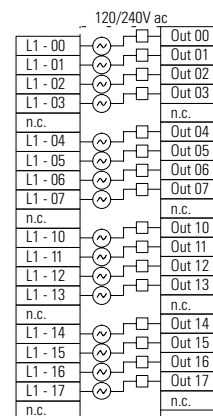
R3	Not Used
S3	Shield
O3	Not Used
I4	Not Used
R4	Not Used
S4	Shield
O4	Not Used
SH	Ground
W1	Not Used

<sup>1</sup> These connections apply only to those applications using C2 Second-Generation-Calibration load points. A sense loop is required when using C2 Second-Generation-Calibration.

1771-sc IM16



1771-sc OMI16 (WN)



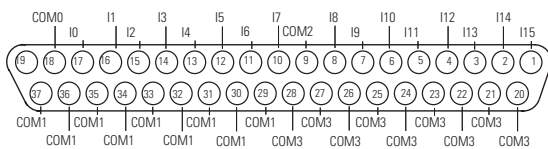
**Notes:**

## 1790 CompactBlock LDX I/O Modules

### IMPORTANT

The catalog numbers included in this chapter are organized alphabetically according to connector type. The modules that use D-shell connectors are listed first, followed by the modules that use terminal blocks.

#### 1790-16BV0X

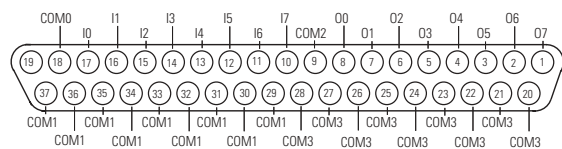


For inputs 0-7: Sinking inputs - wire Com 1 to Field Power (+) 24V dc, wire Com 0 to Field Power (-) GND  
Sourcing inputs - wire Com 1 to Field Power (-) GND, wire Com 0 to Field Power (+) 24V dc

For inputs 8-15: Sinking inputs - wire Com 3 to Field Power (+) 24V dc, wire Com 2 to Field Power (-) GND  
Sourcing inputs - wire Com 3 to Field Power (-) GND, wire Com 2 to Field Power (+) 24V dc

Note: All Com 1 and Com 3 are internally connected - Com 1 is used for inputs 0-7, Com 3 is used for inputs 8-15.

#### 1790-8BV8BX

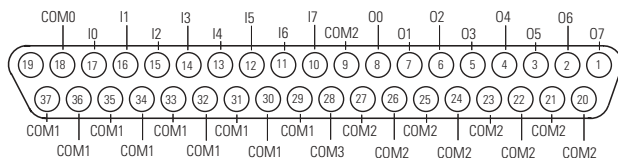


Sinking inputs - wire Com 1 to Field Power (+) 24V dc, wire Com 0 to Field Power (-) GND

Sourcing inputs - wire Com 1 to Field Power (-) GND, wire Com 0 to Field Power (+) 24V dc  
Note: all Com 1 are internally connected.

Sinking outputs - wire Com 2 to Field Power (+) 24Vdc, wire Com 3 to Field Power (-) GND  
Note: all Com 3 are internally connected.

#### 1790-8BV8VX

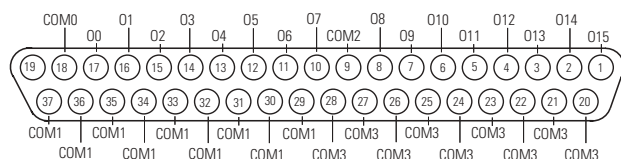


Sinking inputs - wire Com 1 to Field Power (+) 24V dc, wire Com 0 to Field Power (-) GND

Sourcing inputs - wire Com 1 to Field Power (-) GND, wire Com 0 to Field Power (+) 24V dc  
Note: all Com 1 are internally connected.

Sinking outputs - wire Com 2 to Field Power (+) 24Vdc, wire Com 3 to Field Power (-) GND  
Note: all Com 2 are internally connected.

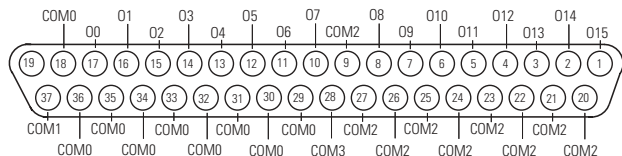
#### 1790-0B16X



Sourcing outputs - wire Com 0 and Com 2 to Field Power (+) 24V dc, wire Com 1 and Com 3 to Field Power (-) GND

Note: all Com 1 and Com 3 are internally connected.

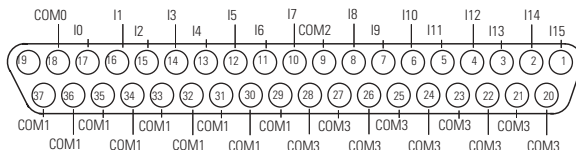
**1790-0V16X**



Sinking outputs - wire Com 0 and Com 2 to Field Power (+) 24V dc, wire Com 1 and Com 3 to Field Power (-) GND

Note: all Com 0 and Com 2 are internally connected.

**1790D-16BVO**

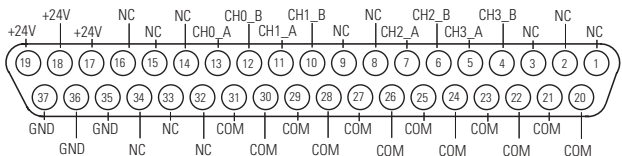


For inputs 0-7: Sinking inputs - wire Com 1 to Field Power (+) 24V dc, wire Com 0 to Field Power (-) GND  
Sourcing inputs - wire Com 1 to Field Power (-) GND, wire Com 0 to Field Power (+) 24V dc

For inputs 8-15: Sinking inputs - wire Com 3 to Field Power (+) 24V dc, wire Com 2 to Field Power (-) GND  
Sourcing inputs - wire Com 3 to Field Power (-) GND, wire Com 2 to Field Power (+) 24V dc

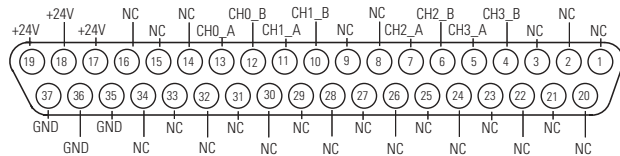
Note: All Com 1 and Com 3 are internally connected - Com 1 is used for inputs 0-7, Com 3 is used for inputs 8-15.

**1790D-4R0**



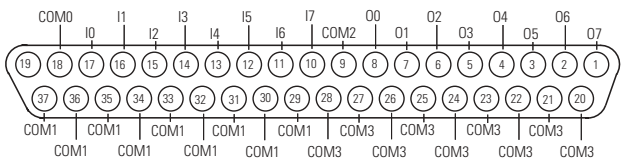
Wire pins 17, 18, 19 to Field Power (+) 24Vdc  
Wire pins 35, 36, 37 to Field Power (-) GND

**1790D-4T0**



Wire pins 17, 18, 19 to Field Power (+) 24Vdc  
Wire pins 35, 36, 37 to Field Power (-) GND

**1790D-8BV8B**

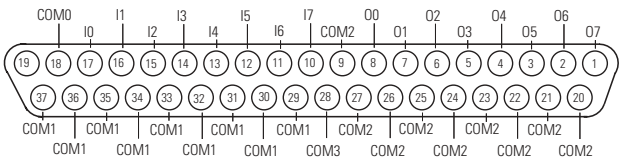


Sinking inputs - wire Com 1 to Field Power (+) 24V dc, wire Com 0 to Field Power (-) GND

Sourcing inputs - wire Com1 to Field Power (-) GND, wire Com 0 to Field Power (+) 24V dc  
Note: all Com 1 are internally connected.

Sinking outputs -wire Com 2 to Field Power (+) 24Vdc, wire Com 3 to Field Power (-) GND  
Note: all Com 3 are internally connected.

**1790D-8BV8V**

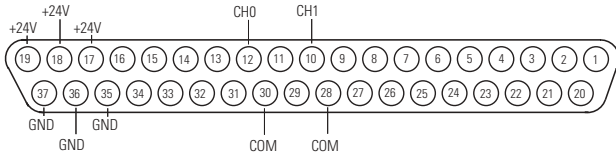


Sinking inputs - wire Com 1 to Field Power (+) 24V dc, wire Com 0 to Field Power (-) GND

Sourcing inputs - wire Com1 to Field Power (-) GND, wire Com 0 to Field Power (+) 24V dc  
Note: all Com 1 are internally connected.

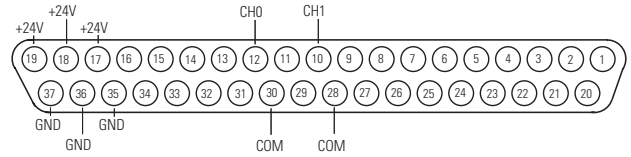
Sinking outputs -wire Com 2 to Field Power (+) 24Vdc, wire Com 3 to Field Power (-) GND  
Note: all Com 2 are internally connected.

**1790D-NOC2**



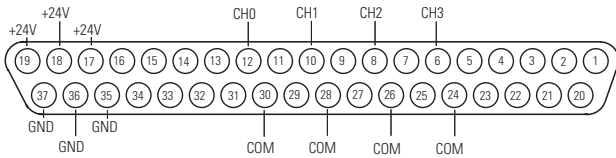
Wire pins 17, 18 and 19 to Field Power (+) 24Vdc  
 Wire pins 35, 36 and 37 to Field Power (-) GND

**1790D-NOV2**



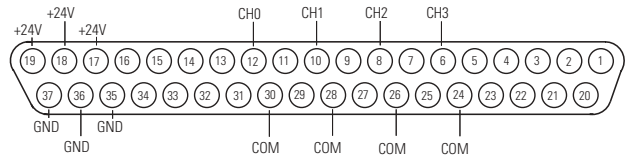
Wire pins 17, 18 and 19 to Field Power (+) 24Vdc  
 Wire pins 35, 36 and 37 to Field Power (-) GND

**1790D-N4C0**



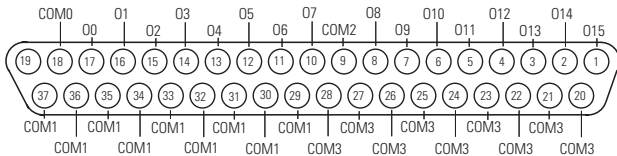
Wire pins 17, 18 and 19 to Field Power (+) 24Vdc  
 Wire pins 35, 36 and 37 to Field Power (-) GND

**1790D-N4V0**



Wire pins 17, 18 and 19 to Field Power (+) 24Vdc  
 Wire pins 35, 36 and 37 to Field Power (-) GND

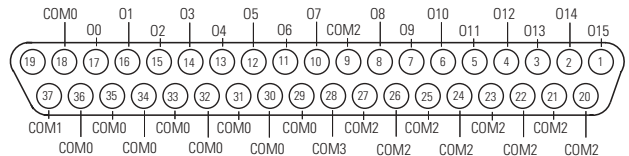
**1790D-OB16**



Sourcing outputs - wire Com 0 and Com 2 to Field Power (+) 24V dc, wire Com 1 and Com 3 to Field Power (-) GND

Note: all Com 1 and Com 3 are internally connected.

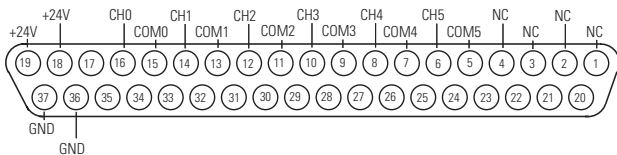
**1790D-OV16**



Sinking outputs - wire Com 0 and Com 2 to Field Power (+) 24V dc, wire Com 1 and Com 3 to Field Power (-) GND

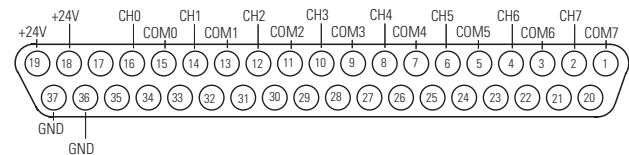
Note: all Com 0 and Com 2 are internally connected.

**1790D-OW6**



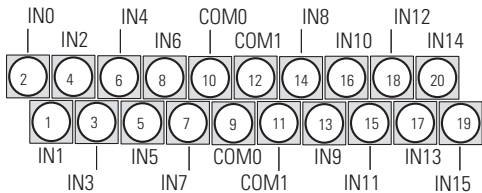
Wire pins 18 and 19 to Field Power (+) 24Vdc  
 Wire pins 36 and 37 to Field Power (-) GND

**1790D-OW8X**



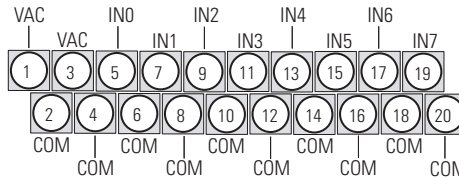
Wire pins 18 and 19 to Field Power (+) 24Vdc  
 Wire pins 36 and 37 to Field Power (-) GND

**1790-T16BVOX**



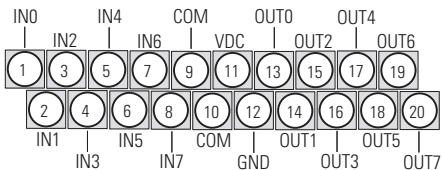
For inputs 0-7 - Sinking inputs - wire Com 0 and Com 1 to Field Power (-) GND  
 Sourcing inputs - wire Com 0 and Com 1 to Field Power (+) 24V dc  
 For inputs 8-15 - Sinking inputs - wire Com 2 and Com 3 to Field Power (-) GND  
 Sourcing inputs - wire Com 2 and Com 3 to Field Power (+) 24V dc

**1790-T8A0X**



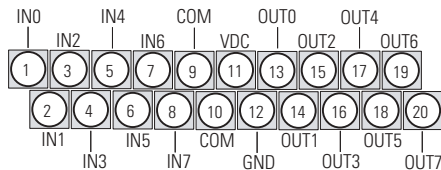
Wire 120Vac Field Power across VAC (pin 1) and COM (pin 2)  
 Note: all VAC are internally connected. All COM are internally connected.

**1790-T8BV8BX**



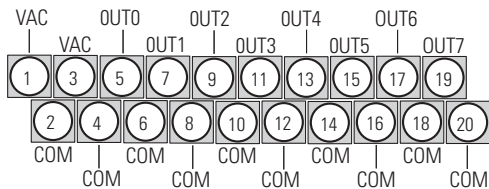
Sinking inputs - wire COM (pin 9) to Field Power (-) GND  
 Sourcing inputs - wire COM (pin 9) to Field Power (+) 24Vdc  
 Note: both COM (pins 9 and 10) are internally connected.  
 Sourcing outputs -wire VDC (pin 11) to Field Power (+) 24Vdc,  
 wire GND (pin 12) to Field Power (-) GND

**1790-T8BV8VX**



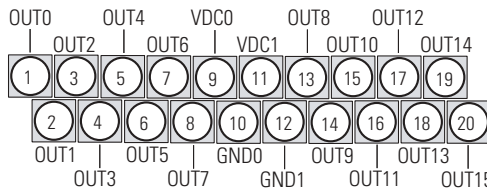
Sinking inputs - wire COM (pin 9) to Field Power (-) GND  
 Sourcing inputs - wire COM (pin 9) to Field Power (+) 24V dc  
 Note: both COM (pins 9 and 10) are internally connected.  
 Sinking outputs -wire VDC (pin 11) to Field Power (+) 24Vdc,  
 wire GND (pin 12) to Field Power (-) GND

**1790-TOA8X**



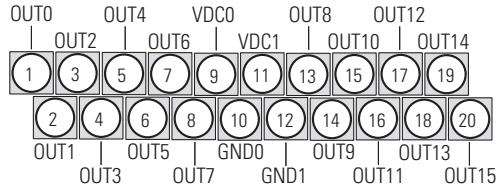
Wire 120 V ac Field Power to VAC (pin 1) and COM (pin 2)  
 NOTE: All VAC are internally connected. All COM are internally connected.

**1790-TOB16X**



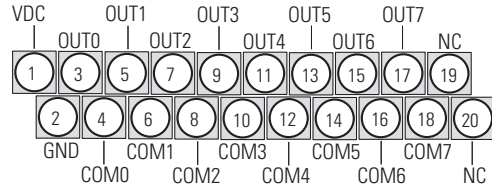
Sourcing outputs - wire VDC0 (pin 9) and VDC1 (pin 11) to Field Power (+) 24V dc, wire GND0 (pin 10) and GND1 (pin 12) to Field Power (-) GND

**1790-TOV16X**



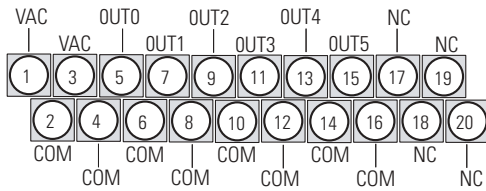
Sinking outputs - wire VDC0 (pin 9) and VDC1 (pin 11) to Field Power (+) 24V dc, wire GND0 (pin 10) and GND1 (pin 12) to Field Power (-) GND

**1790-TOW8X**



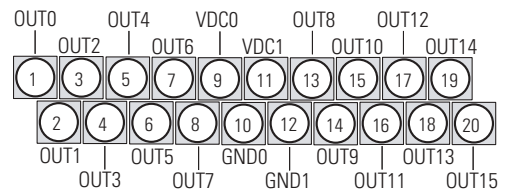
Wire VDC (pin 1) to Field Power (+) 24V dc  
Wire GND (pin 2) to Field Power (-) GND

**1790D-TOA6**



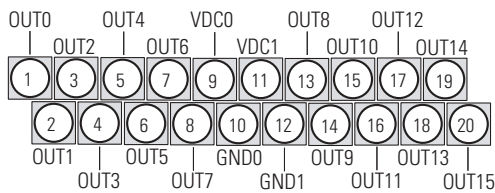
Wire 120Vac Field Power to VAC (pin 1) and COM (pin 2)  
Note: all VAC are internally connected. All COM are internally connected.

**1790D-TOB16**



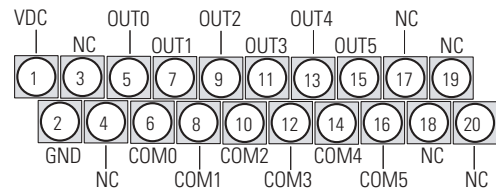
Sourcing outputs - wire VDC0 (pin 9) and VDC1 (pin 11) to Field Power (+) 24V dc, wire GND0 (pin 10) and GND1 (pin 12) to Field Power (-) GND

**1790D-TOV16**



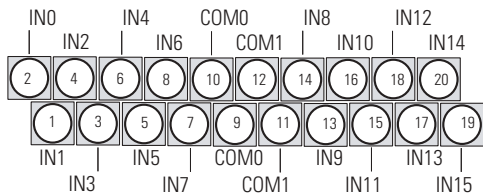
Sinking outputs - wire VDC0 (pin 9) and VDC1 (pin 11) to Field Power (+) 24V dc, wire GND0 (pin 10) and GND1 (pin 12) to Field Power (-) GND

**1790D-TOW6**



Wire VDC (pin 1) to Field Power (+) 24V dc  
Wire GND (pin 2) to Field Power (-) GND

**1790D-T16BVO**

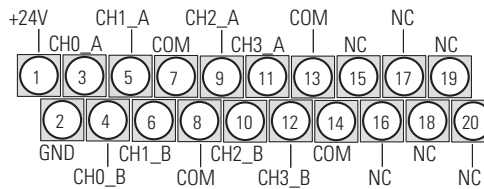


For inputs 0-7 - Sinking inputs - wire COM 0 (pin 9) to Field Power (-) GND  
 Sourcing inputs - wire COM 0 (pin 9) to Field Power (+) 24V dc

For inputs 8-15 - Sinking inputs - wire COM 1 (pin 11) to Field Power (-) GND  
 Sourcing inputs - wire COM 1 (pin 11) to Field Power (+) 24V dc

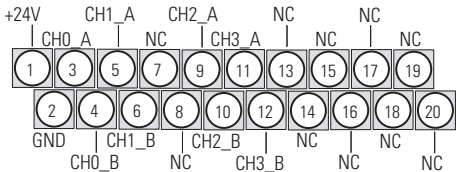
Note: Both COM 0 are internally connected - COM 0 is used for inputs 0-7, COM 1 is used for input 8-15. Both COM 1 are internally connected.

**1790D-T4RO**



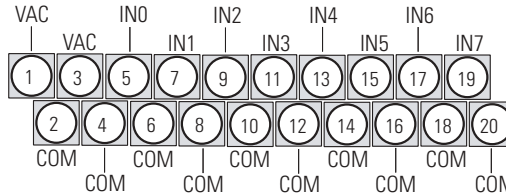
Wire pin 1 to Field Power (+) 24Vdc  
 Wire pin 2 to Field Power (-) GND

**1790D-T4TO**



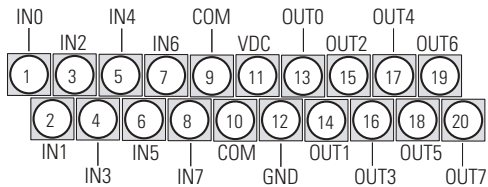
Wire pin 1 to Field Power (+) 24V dc  
 Wire pin 2 to Field Power (-) GND

**1790D-T8AO**



Wire 120Vac Field Power across VAC (pin 1) and COM (pin 2)  
 Note: all VAC are internally connected. All COM are internally connected.

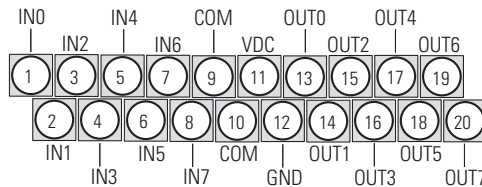
**1790D-T8BV8B**



Sinking inputs - wire COM (pin 9) to Field Power (-) GND  
 Sourcing inputs - wire COM (pin 9) to Field Power (+) 24Vdc  
 Note: both COM (pins 9 and 10) are internally connected.

Sourcing outputs -wire VDC (pin 11) to Field Power (+) 24Vdc,  
 wire GND (pin 12) to Field Power (-) GND

**1790D-T8BV8V**

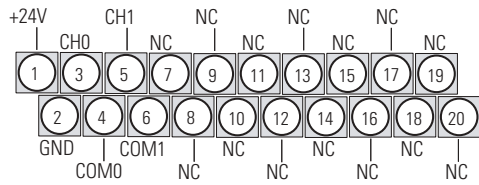


Sinking inputs - wire COM (pin 9) to Field Power (-) GND  
 Sourcing inputs - wire COM (pin 9) to Field Power (+) 24V dc  
 Note: both COM (pins 9 and 10) are internally connected.

Sinking outputs -wire VDC (pin 11) to Field Power (+) 24Vdc,  
 wire GND (pin 12) to Field Power (-) GND

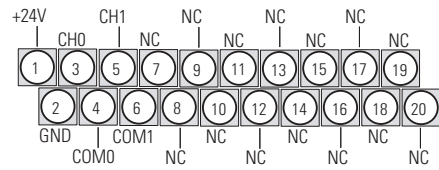


**1790D-TNOC2**



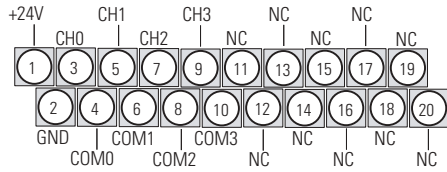
Wire pin 1 to Field Power (+) 24Vdc  
Wire pin 2 to Field Power (-) GND

**1790D-TNOV2**



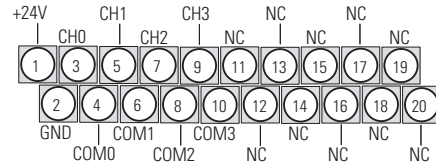
Wire pin 1 to Field Power (+) 24Vdc  
Wire pin 2 to Field Power (-) GND

**1790D-TN4CO**



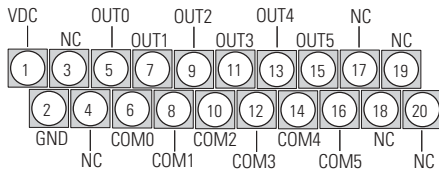
Wire pin 1 to Field Power (+) 24Vdc  
Wire pin 2 to Field Power (-) GND

**1790D-TN4VO**



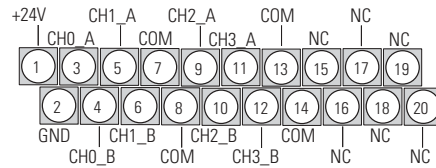
Wire pin 1 to Field Power (+) 24Vdc  
Wire pin 2 to Field Power (-) GND

**1790P-T0W6**



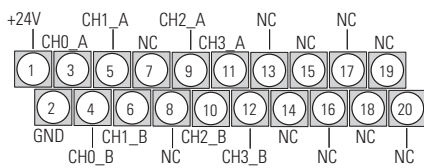
Wire VDC (pin 1) to Field Power (+) 24V dc  
Wire GND (pin 2) to Field Power (-) GND

**1790P-T4R0**



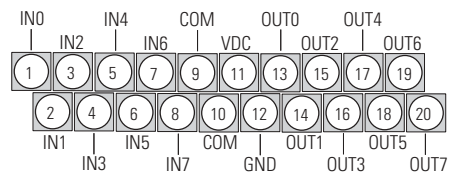
Wire pin 1 to Field Power (+) 24V dc  
Wire pin 2 to Field Power (-) GND

**1790P-T4T0**



Wire pin 1 to Field Power (+) 24V dc  
Wire pin 2 to Field Power (-) GND

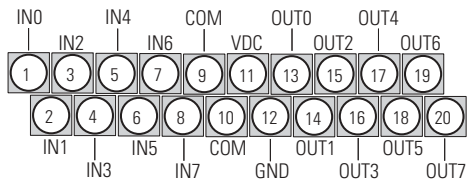
**1790P-T8BV8B**



Sinking inputs - Wire COM (pin 9) to Field Power (-) GND  
Sourcing inputs - Wire COM (pin 9) to Field Power (+) 24V dc  
Note: Both COM (pins 9 and 10) are internally connected.

Sourcing outputs - Wire VDC (pin 11) to Field Power (+) 24V dc, and wire GND (pin 12) to Field Power (-) GND

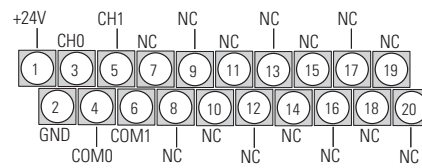
**1790P-T8BV8V**



Sinking inputs - Wire COM (pin 9) to Field Power (-) GND  
 Sourcing inputs - Wire COM (pin 9) to Field Power (+) 24V dc  
 Note: Both COM (pins 9 and 10) are internally connected.

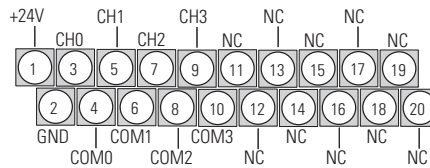
Sourcing outputs - Wire VDC (pin 11) to Field Power (+) 24V dc, and wire GND (pin 12) to Field Power (-) GND

**1790P-TN0C2**



Wire pin 1 to Field Power (+) 24V dc  
 Wire pin 2 to Field Power (-) GND

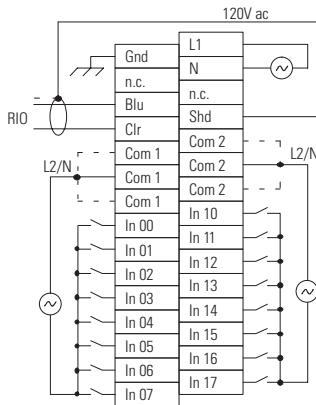
**1790P-TN4C0**



Wire pin 1 to Field Power (+) 24V dc  
 Wire pin 2 to Field Power (-) GND

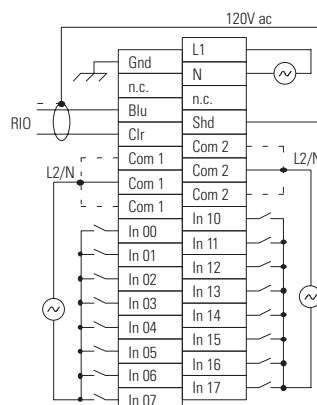
## 1791 I/O Blocks

**1791-16A0B**



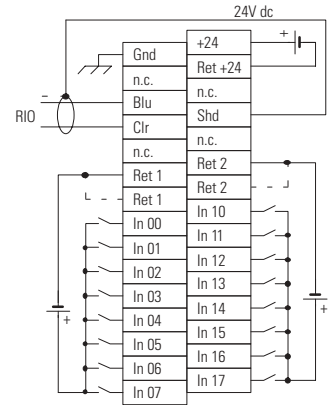
Com 1 terminals are connected internally.  
Com 2 terminals are connected internally.

**1791-16ACB**



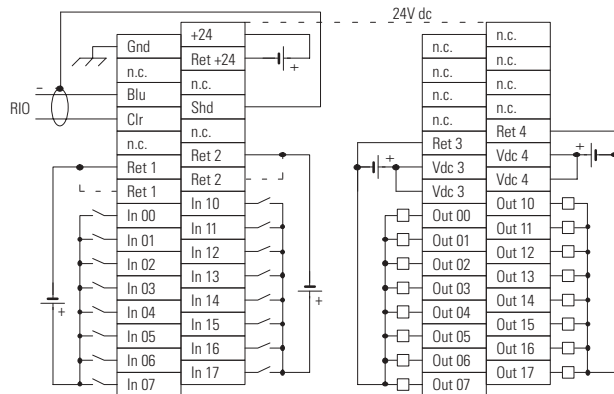
Com 1 terminals are connected internally.  
Com 2 terminals are connected internally.

**1791-16A0B**

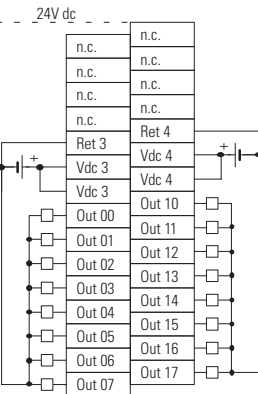


Ret 1 terminals are connected internally.  
Ret 2 terminals are connected internally.

**1791-16BCB**

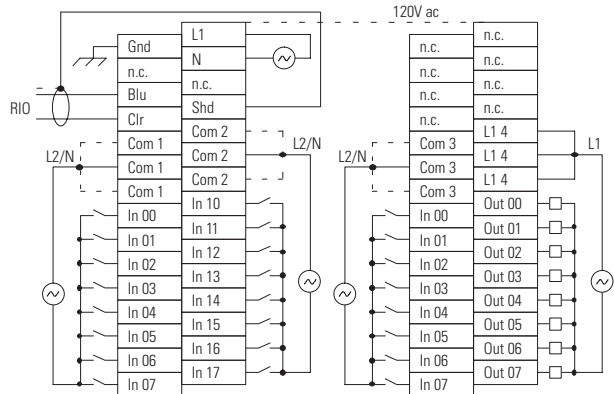


Ret 1 terminals are connected internally.  
Ret 2 terminals are connected internally.

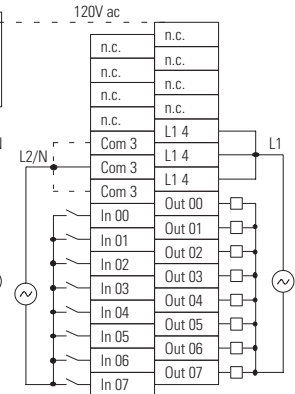


Vdc 3 terminals are connected internally.  
Vdc 4 terminals are connected internally.  
Each output must be fused externally.

**1791-24A8B**

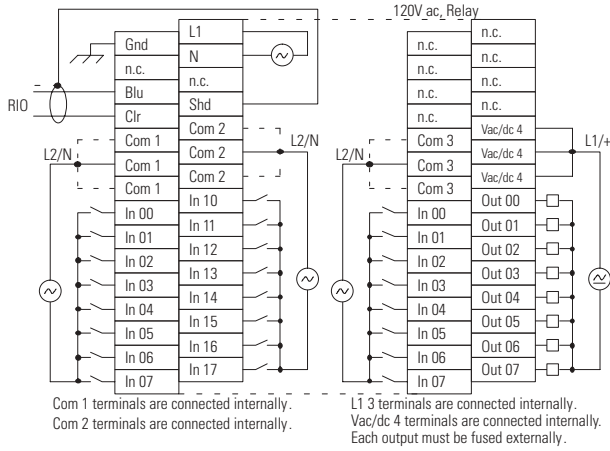


Com 1 terminals are connected internally.  
Com 2 terminals are connected internally.

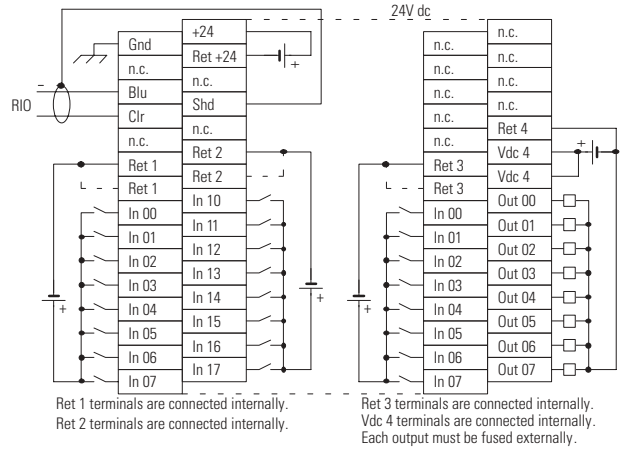


L1 3 terminals are connected internally.  
L1 4 terminals are connected internally.  
Each output must be fused externally.

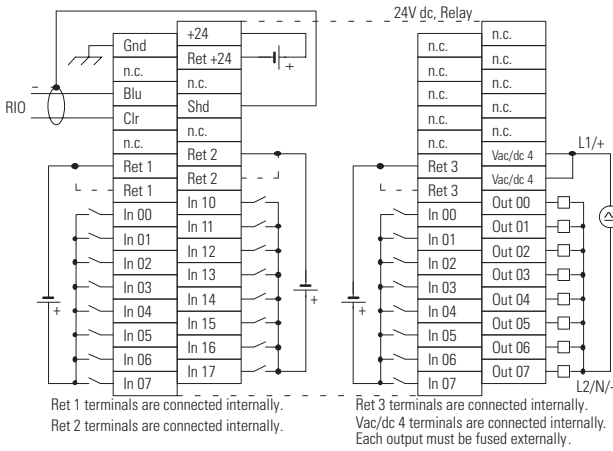
**1791-24ARB**



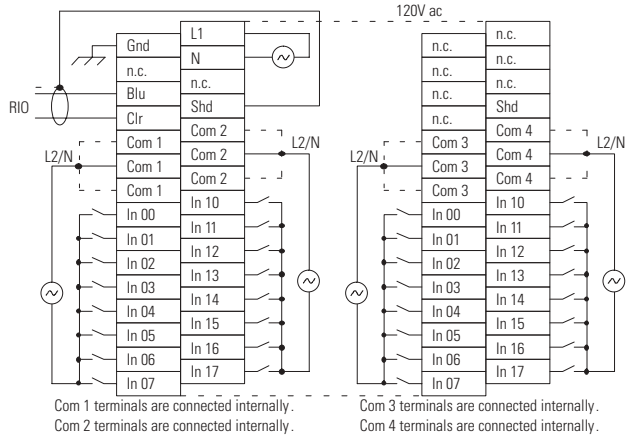
**1791-24B8B**



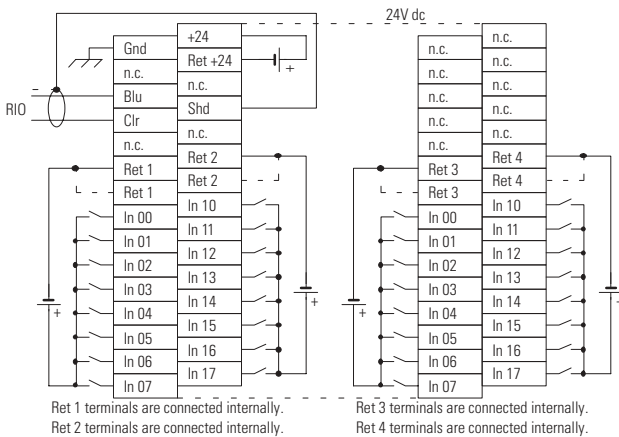
**1791-24BRB**



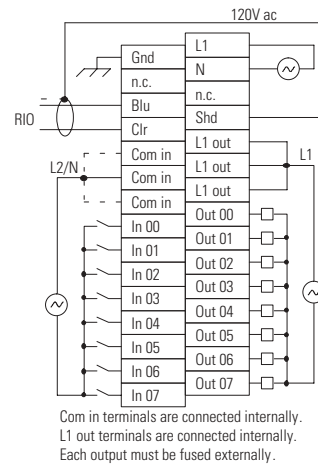
**1791-32A0B**



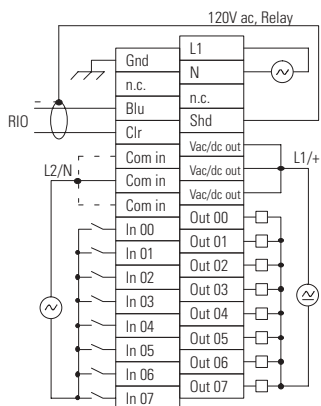
**1791-32B0B**



**1791-8ACB**

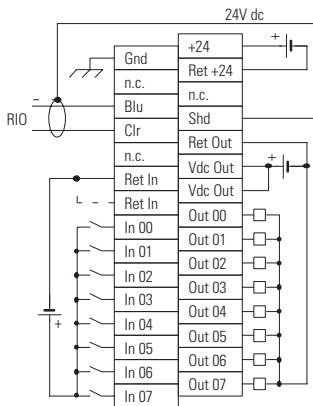


**1791-8ARB**



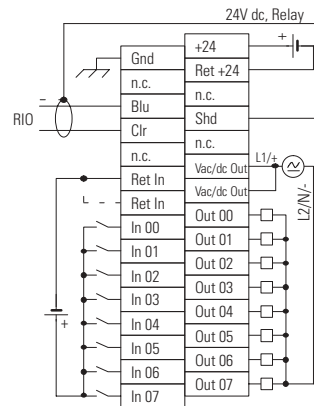
Com in terminals are connected internally.  
L1 out terminals are connected internally.  
Each output must be fused externally.

**1791-8BCB**



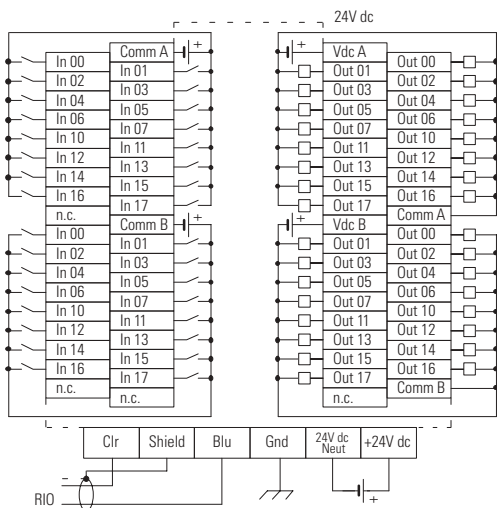
Ret In terminals are connected internally.  
Vdc Out terminals are connected internally.  
Each output must be fused externally.

**1791-8BRB**

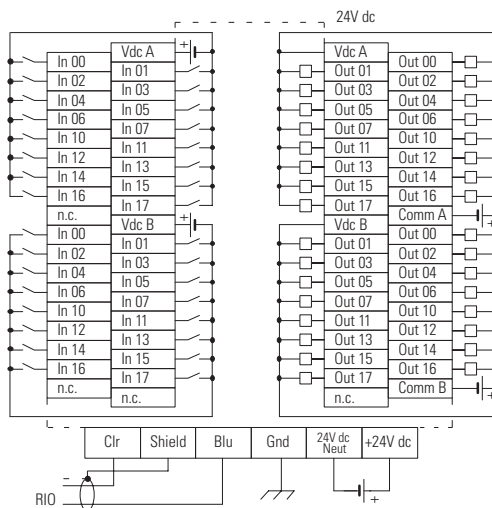


Ret In terminals are connected internally.  
Vac/dc Out terminals are connected internally.  
Each output must be fused externally.

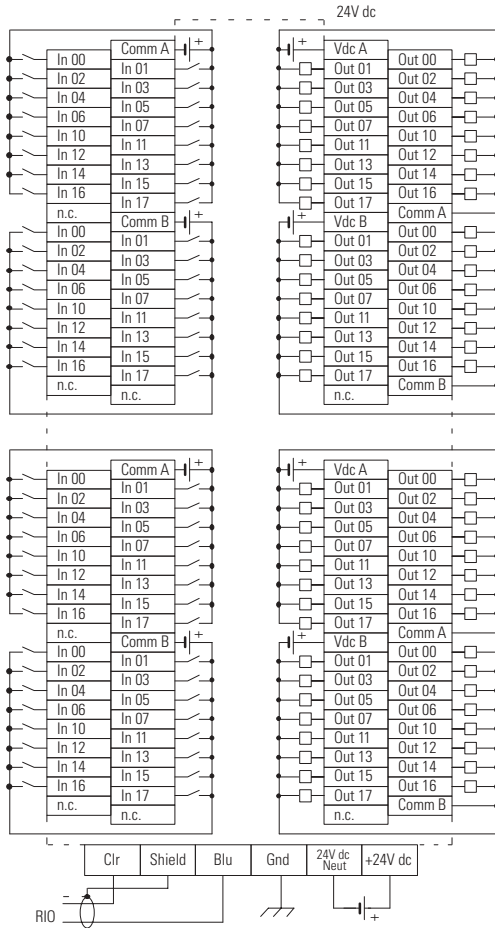
**1791-10BW**



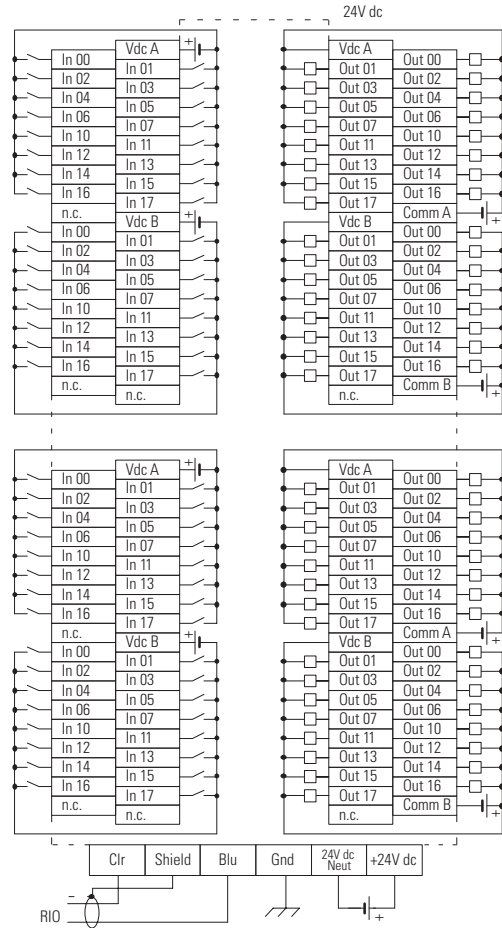
**1791-10VW**



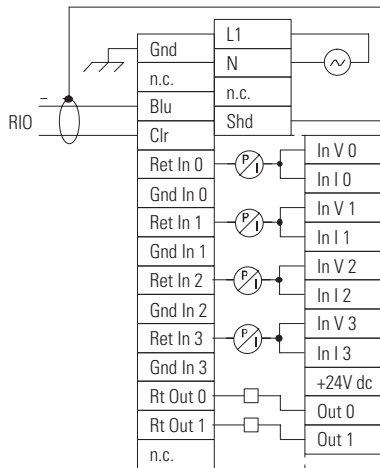
**1791-IOBX**



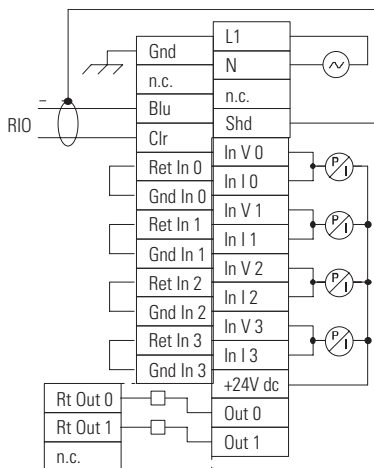
**1791-IOVX**



**1791-N4C2 – Current applications**

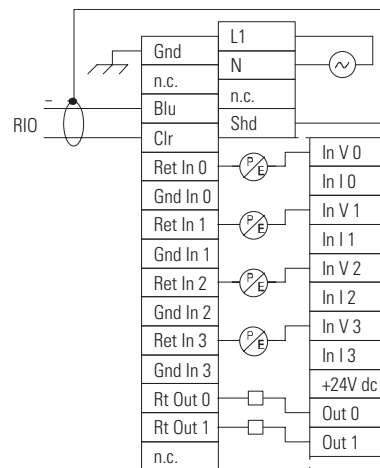


Connected this way, external input loop power is needed.



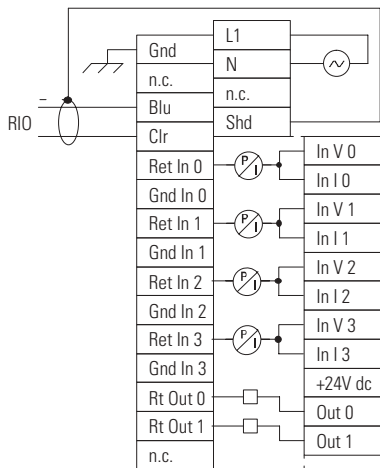
Input loop power provided internally.

**1791-N4C2 – Voltage applications**

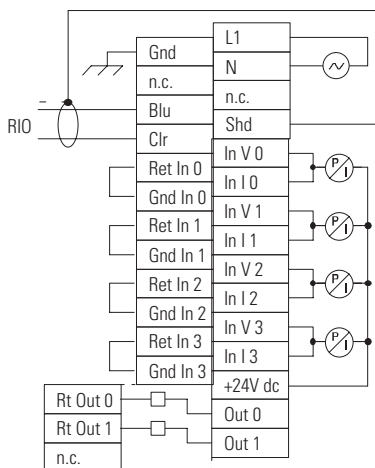


External input loop power needed.

**1791-N4V2 – Current applications**

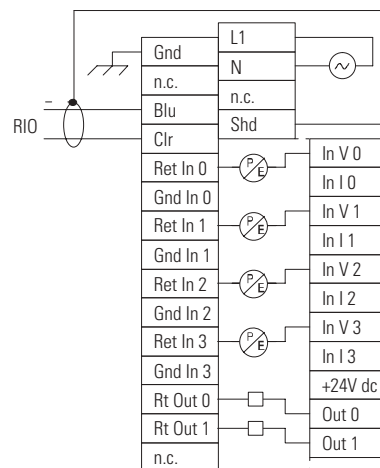


Connected this way, external input loop power is needed.



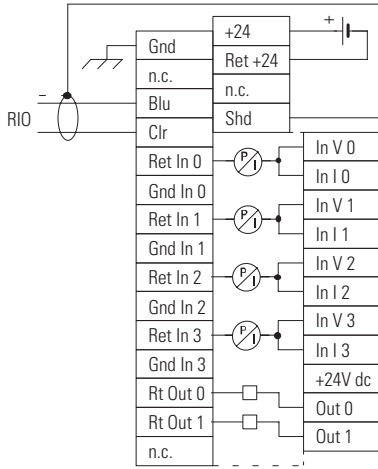
Input loop power provided internally.

**1791-N4V2 – Voltage applications**

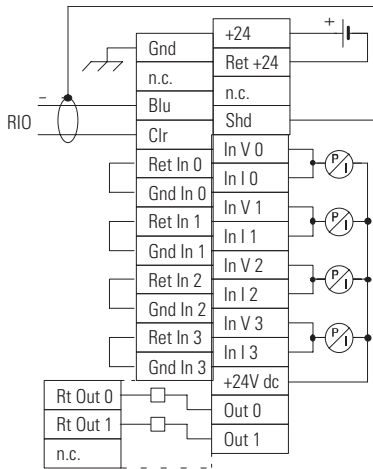


External input loop power needed.

**1791-NDC – Current applications**

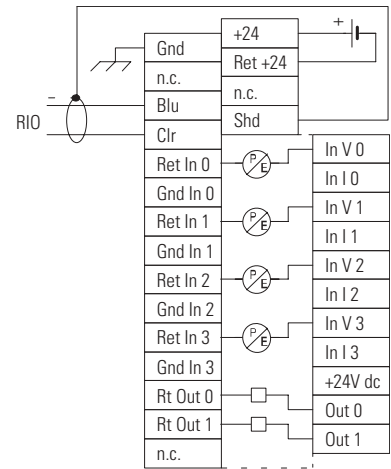


Connected this way, external input loop power is needed.



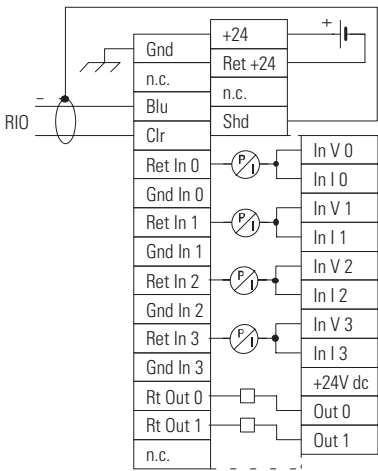
Input loop power provided internally.

**1791-NDC – Voltage applications**

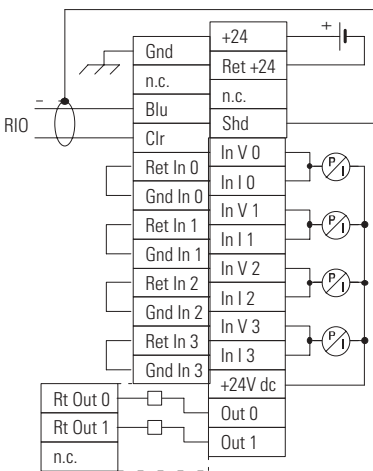


External input loop power needed.

**1791-NDV – Current applications**

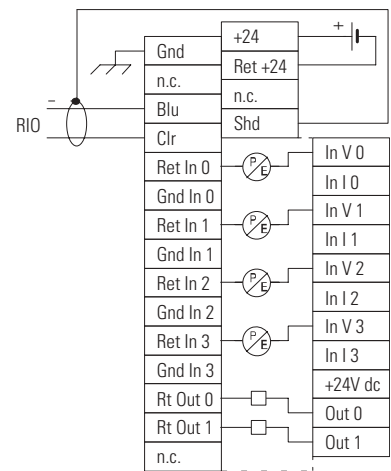


Connected this way, external input loop power is needed.



Input loop power provided internally.

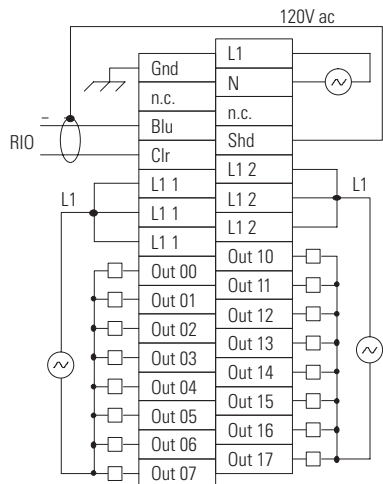
**1791-NDV – Voltage applications**



External input loop power needed.

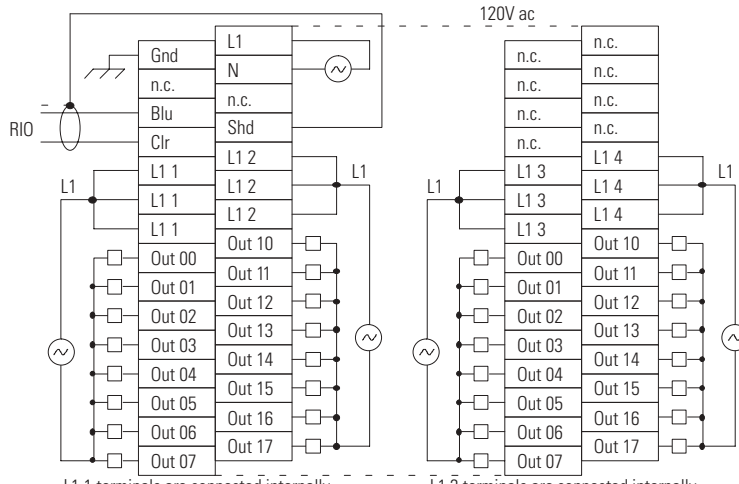


**1791-0A16B**



L1 1 terminals are connected internally.  
L1 2 terminals are connected internally.  
Each output must be fused externally.

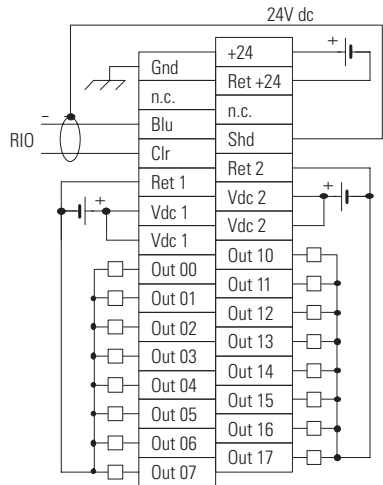
**1791-0A32B**



L1 1 terminals are connected internally.  
L1 2 terminals are connected internally.

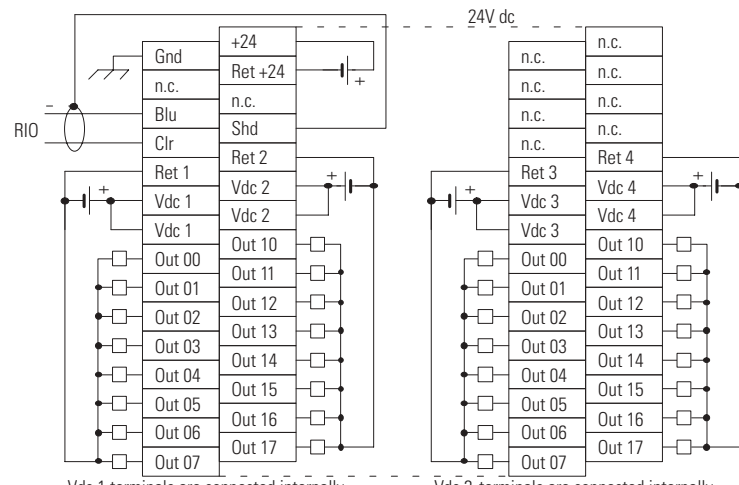
L1 3 terminals are connected internally.  
L1 4 terminals are connected internally.  
Each output must be fused externally.

**1791-0B16B**



Vdc 1 terminals are connected internally.  
Vdc 2 terminals are connected internally.  
Each output must be fused externally.

**1791-0B32B**



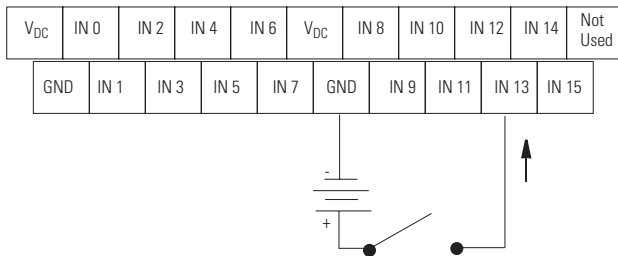
Vdc 1 terminals are connected internally.  
Vdc 2 terminals are connected internally.

Vdc 3 terminals are connected internally.  
Vdc 4 terminals are connected internally.  
Each output must be fused externally.

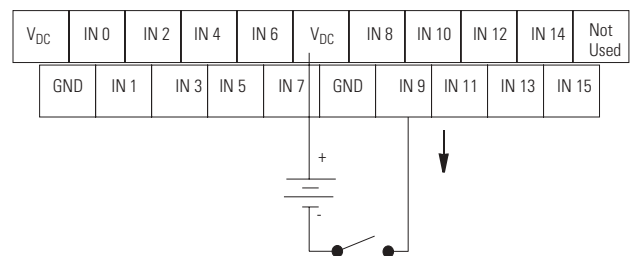
**Notes:**

# 1791D CompactBlock I/O Blocks

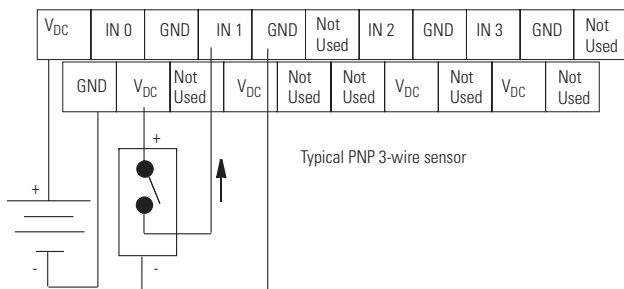
**1791D-16B0, -16BOX**



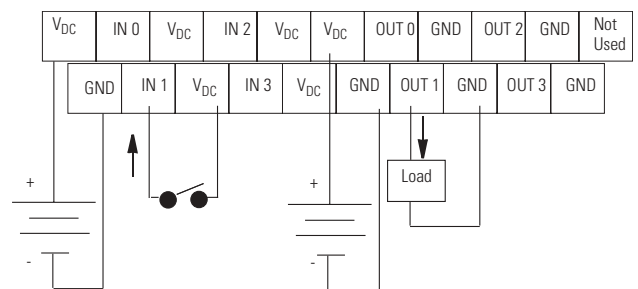
**1791D-16V0, -16VOX**



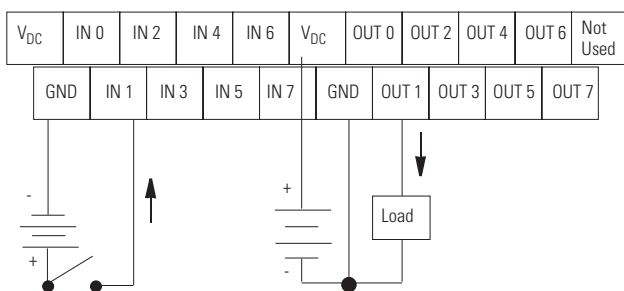
**1791D-4B0**



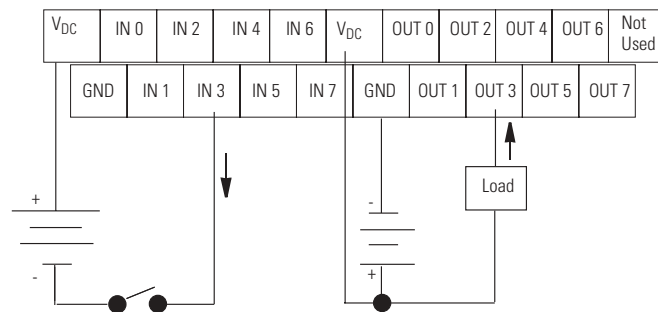
**1791D-4B4P**



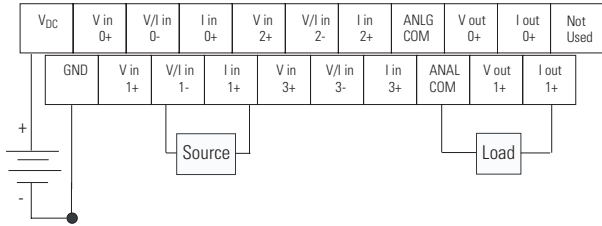
**1791D-8B8P**



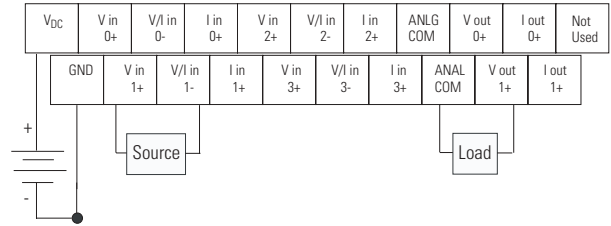
**1791D-8V8P**



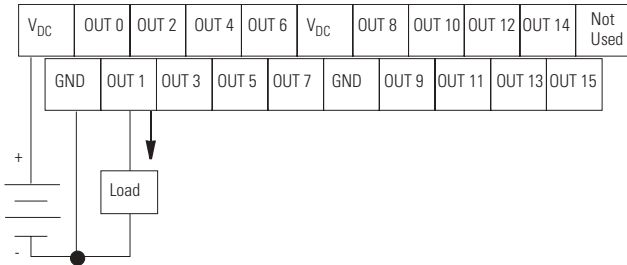
**1791D-N4CV2X – Current**



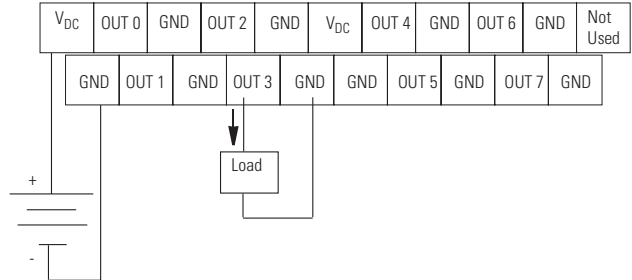
**1791D-N4CV2X – Voltage**



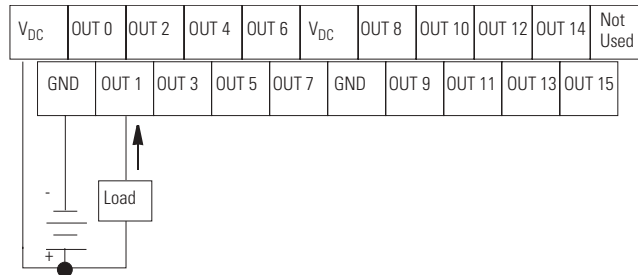
**1791D-OB16P, -OB16PX**



**1791D-OB8P**

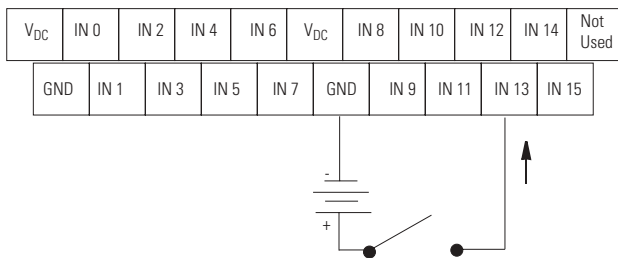


**1791D-OV16P, -OV16PX**

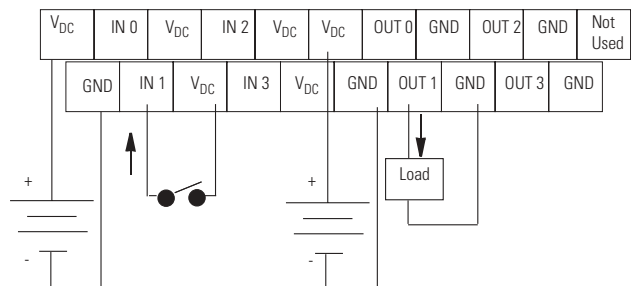


## 1791P CompactBlock I/O Blocks

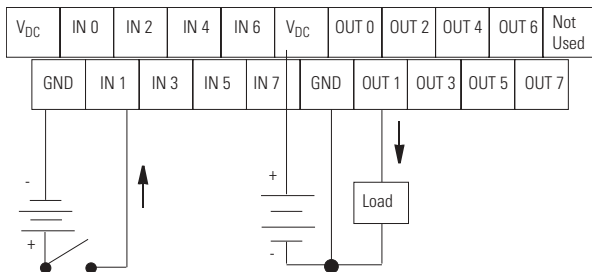
**1791P-16B0**



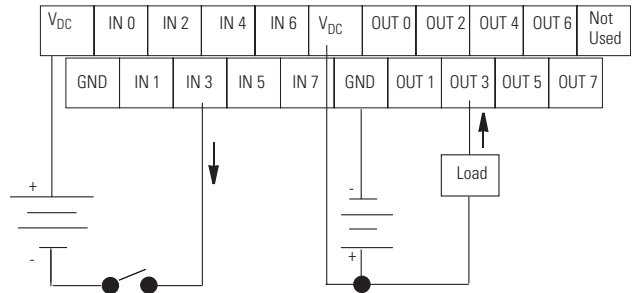
**1791P-4B4P**



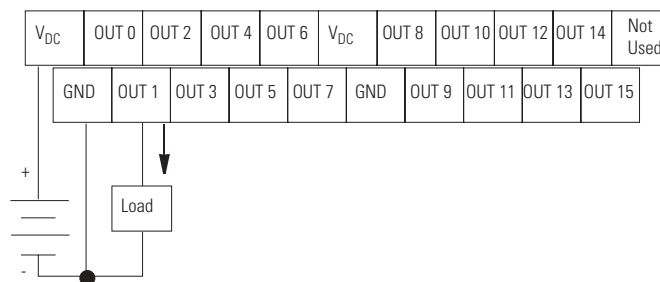
**1791P-8B8P**



**1791P-8V8P**



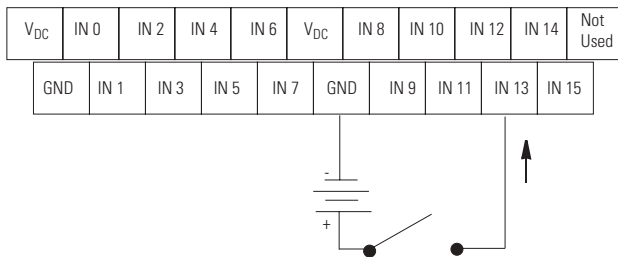
**1791P-0B16P**



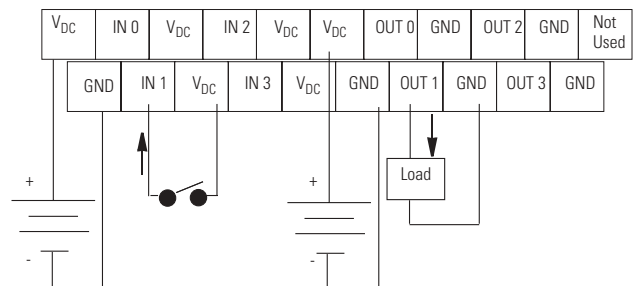
**Notes:**

## 1791R CompactBlock I/O Blocks

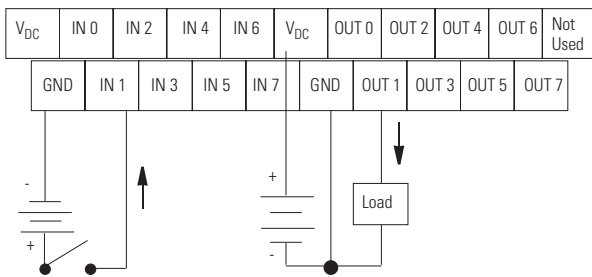
**1791R-16B0**



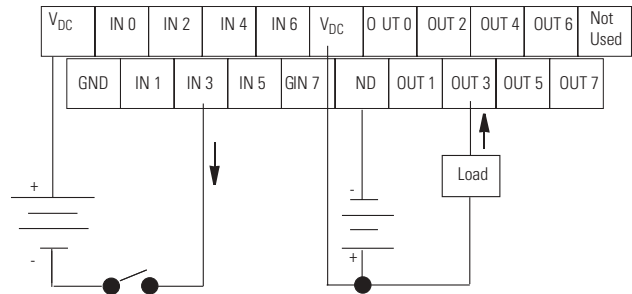
**1791R-4B4P**



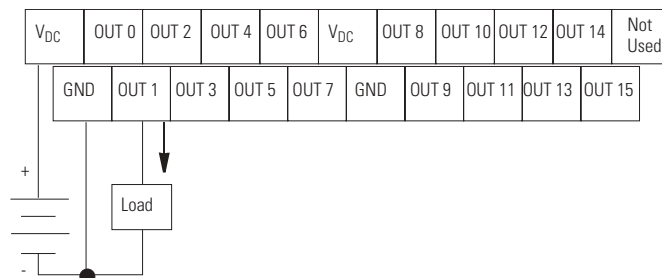
**1791R-8B8P**



**1791R-8V8P**



**1791P-0B16P**

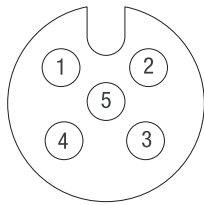


**Notes:**

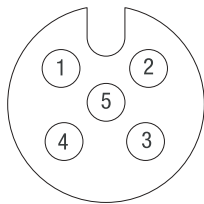


## 1792D ArmorBlock MaXum I/O Blocks

### 1792D-12BT4PE



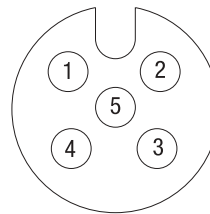
Input Micro-Connector  
(view into socket)  
Pin 1 Sensor Source voltage  
Pin 2 Input B  
Pin 3 Return Logic Ground<sup>1</sup>  
Pin 4 Input A  
Pin 5 Physical Earth



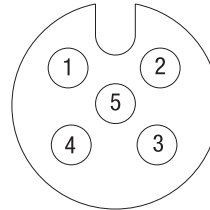
Output Micro-Connector  
(view into socket)  
Pin 1 Not Used  
Pin 2 Output B  
Pin 3 Auxiliary Power Ground  
Pin 4 Output A  
Pin 5 Physical Earth

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

### 1792D-12BVT4D



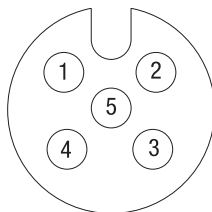
Input Micro-Connector  
(View into Socket)  
Pin 1 Sensor Source voltage  
Pin 2 Input B  
Pin 3 Return Logic Ground<sup>1</sup>  
Pin 4 Input A  
Pin 5 Not Used



Output Micro-Connector  
(View into Socket)  
Pin 1 Not Used  
Pin 2 Output B  
Pin 3 Auxiliary Power Ground<sup>1</sup>  
Pin 4 Output A  
Pin 5 Not Used

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

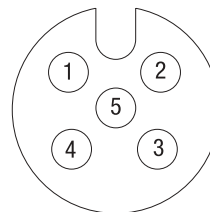
### 1792D-16BVT0CD



Input Micro Connector  
(View into Socket)  
Pin 1 Sensor Source Voltage A  
Pin 2 Input B  
Pin 3 Return Logic Ground<sup>1</sup>  
Pin 4 Input A  
Pin 5 Sensor Source Voltage B

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

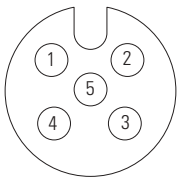
### 1792D-16BVT0D



Input Micro Connector  
(View into Socket)  
Pin 1 Sensor Source Voltage  
Pin 2 Input B  
Pin 3 Return Logic Ground<sup>1</sup>  
Pin 4 Input A  
Pin 5 Not Used

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

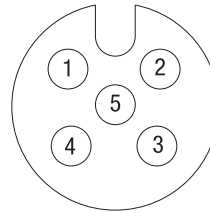
**1792D-2BVA2D**



**Input Micro Connector**  
 (View into Socket)  
 Pin 1 Sensor Source Voltage  
 Pin 2 Alarm  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input  
 Pin 5 Not Used

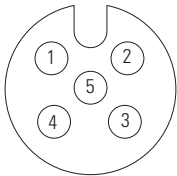
<sup>1</sup>(Logic Ground is approximately 0.4V above DeviceNet V-measured at the module).

**1792D-2BV0D**



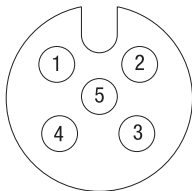
**Input Micro Connector**  
 (View into Sockets)  
 Pin 1 Sensor Source Voltage  
 Pin 2 Not Used  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input  
 Pin 5 Not Used

<sup>1</sup> Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

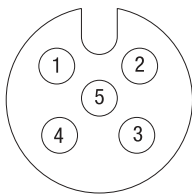


**Output Micro Connector**  
 (View into Socket)  
 Pin 1 Not used  
 Pin 2 Not used  
 Pin 3 Auxiliary Power Ground  
 Pin 4 Output  
 Pin 5 Not Used

**1792D-4BV4D**

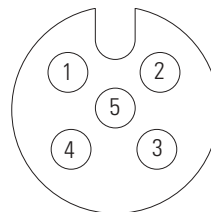


**Input Micro-Connector**  
 (View into Socket)  
 Pin 1 Sensor Source voltage  
 Pin 2 Not Used  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input A  
 Pin 5 Not Used



**Output Micro-Connector**  
 (View into Socket)  
 Pin 1 Not Used  
 Pin 2 Not Used  
 Pin 3 Auxiliary Power Ground  
 Pin 4 Output A  
 Pin 5 Not Used  
<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

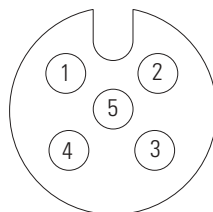
**1792D-4BV0D**



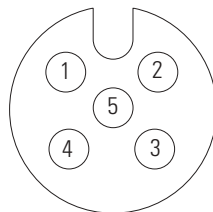
**Input Micro-Connector**  
 (View into Socket)  
 Pin 1 Sensor Source Voltage  
 Pin 2 Not Used  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input  
 Pin 5 Not Used

<sup>1</sup> Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

**1792D-4BVT4D**



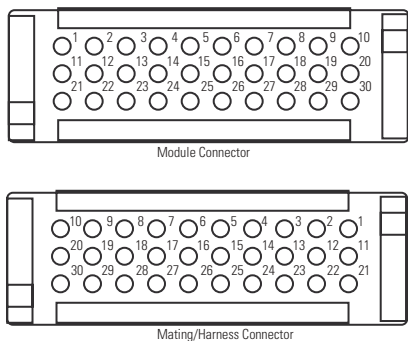
**Input Micro-Connector**  
 (View into Sockets)  
 Pin 1 Sensor Source Voltage  
 Pin 2 Input B  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input A  
 Pin 5 Not Used



**Output Micro-Connector**  
 (View into Sockets)  
 Pin 1 Not Used  
 Pin 2 Output B  
 Pin 3 Auxiliary Power Ground  
 Pin 4 Output A  
 Pin 5 Not Used

<sup>1</sup> Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

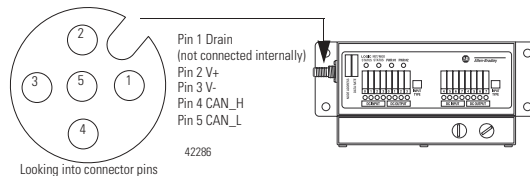
**1792D-88HC**



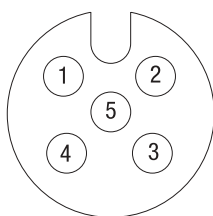
Pin Number	Signal
1	PWR1+
2	IN_0 (GR P 1)
3	IN_1 (GR P 1)
4	IN_2 (GR P 1)
5	IN_3 (GR P 1)
6	IN_0 (GR P 2)
7	IN_1 (GR P 2)
8	IN_2 (GR P 2)
9	IN_3 (GR P 2)
10	PWR 2+
11	PWR 1+
12	PWR 1-
13	PWR 1-
14	PWR 1-
15	PWR 1-

Pin Number	Signal
16	PWR 2-
17	PWR 2-
18	PWR 2-
19	PWR 2-
20	PWR 2+
21	PWR 1+
22	OU T_0 (GRP 1)
23	OU T_1 (GRP 1)
24	OU T_2 (GRP 1)
25	OU T_3 (GRP 1)
26	OU T_0 (GRP 2)
27	OU T_1 (GRP 2)
28	OU T_2 (GRP 2)
29	OU T_3 (GRP 2)
30	PWR 2+

Connect the DeviceNet Cable to the Module  
 Connect the DeviceNet wiring to the 5-pin micro-connector on the module. The micro-connector pinout is shown below.



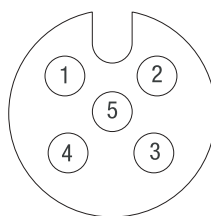
**1792D-8BI08E**



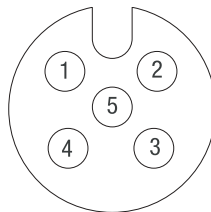
**Input/ Output Micro-Connector**  
 (View into Socket)  
 Pin 1 Sensor Source Voltage  
 Pin 2 Output B  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input A  
 Pin 5 Not Used

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

**1792D-8BT8PE**



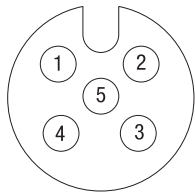
**Input Micro-Connector**  
 (view into socket)  
 Pin 1 Sensor Source voltage  
 Pin 2 Input B  
 Pin 3 Return Logic Ground<sup>1</sup>  
 Pin 4 Input A  
 Pin 5 PE



**Output Micro-Connector**  
 (view into socket)  
 Pin 1 Not Used  
 Pin 2 Output B  
 Pin 3 Auxiliary Power Ground  
 Pin 4 Output A  
 Pin 5 PE

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

**1792D-8BV0D**



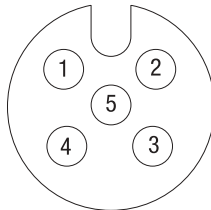
**Input Micro-Connector**

(View into Socket)

- Pin 1 Sensor Source voltage
- Pin 2 Not Used
- Pin 3 Return Logic Ground<sup>1</sup>
- Pin 4 Input A
- Pin 5 Not Used

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

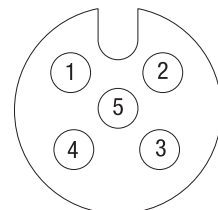
**1792D-8BVT8CD**



**Input Micro-Connector**

(View into Socket)

- Pin 1 Sensor Source voltage A
- Pin 2 Input B
- Pin 3 Return Logic Ground<sup>1</sup>
- Pin 4 Input A
- Pin 5 Sensor Source voltage B



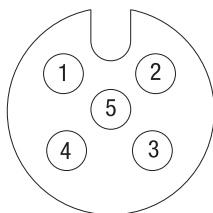
**Output Micro-Connector**

(View into Socket)

- Pin 1 Not Used
- Pin 2 Output B
- Pin 3 Auxiliary Power Ground
- Pin 4 Output A
- Pin 5 Not Used

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

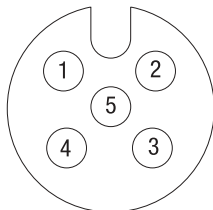
**1792D-8BVT8D**



**Input Micro-Connector**

(View into Socket)

- Pin 1 Sensor Source voltage
- Pin 2 Input B
- Pin 3 Return Logic Ground<sup>1</sup>
- Pin 4 Input A
- Pin 5 Not Used



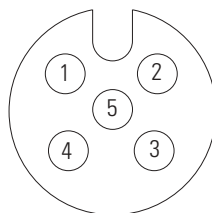
**Output Micro-Connector**

(View into Socket)

- Pin 1 Not Used
- Pin 2 Output B
- Pin 3 Auxiliary Power Ground
- Pin 4 Output A
- Pin 5 Not Used

<sup>1</sup>Logic Ground is approximately 0.4V above DeviceNet V- measured at the module.

**1792D-8BVT0D**



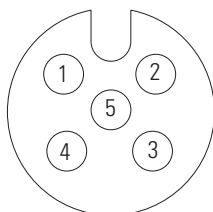
**Input Micro-Connector**

(View into Sockets)

- Pin 1 Sensor Source Voltage
- Pin 2 Input B
- Pin 3 Return Logic Ground<sup>1</sup>
- Pin 4 Input A
- Pin 5 Not Used

<sup>1</sup> Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

**1792D-0B4D**

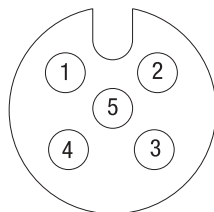


**Micro-Connector**

(View into Sockets)

- Pin 1 Not Used
- Pin 2 Not Used
- Pin 3 Auxiliary Power Ground
- Pin 4 Output
- Pin 5 Not Used

**1792D-0B8D**

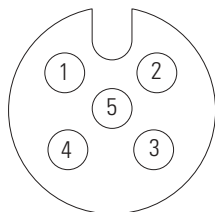


**Output Micro-Connector**

(View into Sockets)

- Pin 1 Not Used
- Pin 2 Not Used
- Pin 3 Auxiliary Power Ground
- Pin 4 Output A
- Pin 5 Not Used

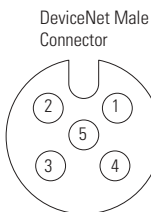
**1792D-OVT16E**



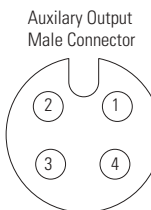
**Micro-Connector**  
 (View into Sockets)  
 Pin 1 Auxiliary +24V dc  
 Pin 2 Output B  
 Pin 3 Not used  
 Pin 4 Output A  
 Pin 5 Not Used

**Cable Bases**

**1792D-CB12**

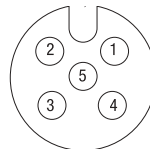


Pin 1 Drain  
 Pin 2 V+  
 Pin 3 V-  
 Pin 4 CAN\_H  
 Pin 5 CAN\_L



Pin 1 24Vdc  
 Pin 2 24Vdc  
 Pin 3 Return  
 Pin 4 Return

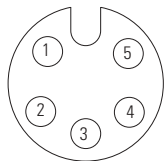
**1792D-CB12JP**



Pin 1 Drain  
 Pin 2 V+  
 Pin 3 V-  
 Pin 4 CAN\_H  
 Pin 5 CAN\_L

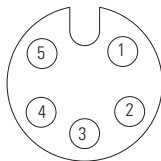
**1792D-CB18**

DeviceNet In Connector (looking into pins)



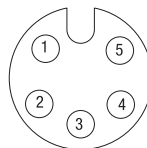
Pin 1 Drain  
 Pin 2 V+  
 Pin 3 V-  
 Pin 4 CAN\_H  
 Pin 5 CAN\_L

DeviceNet Out Connector (looking into sockets)



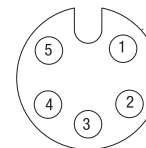
**1792D-CB18JP**

DeviceNet In (pins)



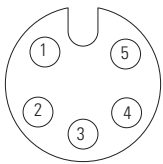
Pin 1 Drain  
 Pin 2 V+  
 Pin 3 V-  
 Pin 4 CAN\_H  
 Pin 5 CAN\_L

DeviceNet Out (sockets)



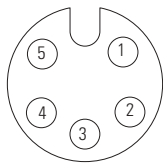
**1792D-CB18P**

DeviceNet In Connector (looking into pins)



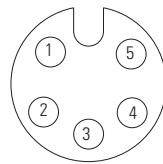
Pin 1 Drain  
Pin 2 V+  
Pin 3 V-  
Pin 4 CAN\_H  
Pin 5 CAN\_L

DeviceNet Out Connector (looking into sockets)



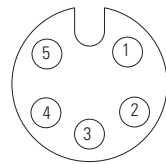
**1792D-CB18PT**

DeviceNet In Connector (looking into pins)

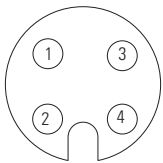


Pin 1 Drain  
Pin 2 V+  
Pin 3 V-  
Pin 4 CAN\_H  
Pin 5 CAN\_L

DeviceNet Out Connector (looking into sockets)

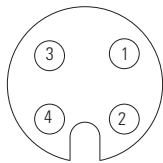


Auxiliary Output Power In Connector (looking into pins)

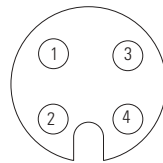


Pin 1 24Vdc  
Pin 2 Not Used  
Pin 3 Not Used  
Pin 4 Return

Auxiliary Output Power In Connector (looking into sockets)

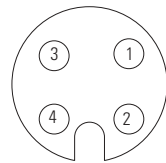


Auxiliary Output Power In Connector (looking into pins)



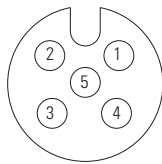
Pin 1 24Vdc  
Pin 2 Not Used  
Pin 3 Not Used  
Pin 4 Return

Auxiliary Output Power In Connector (looking into sockets)



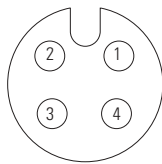
**1792D-CBFM**

DeviceNet Male Connector



Pin 1 Drain  
Pin 2 V+  
Pin 3 V-  
Pin 4 CAN\_H  
Pin 5 CAN\_L

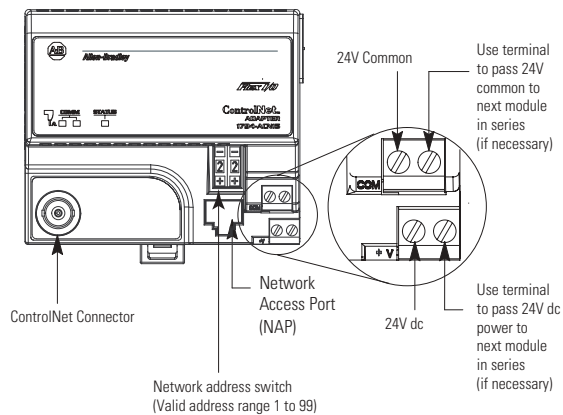
Auxiliary Output Male Connector



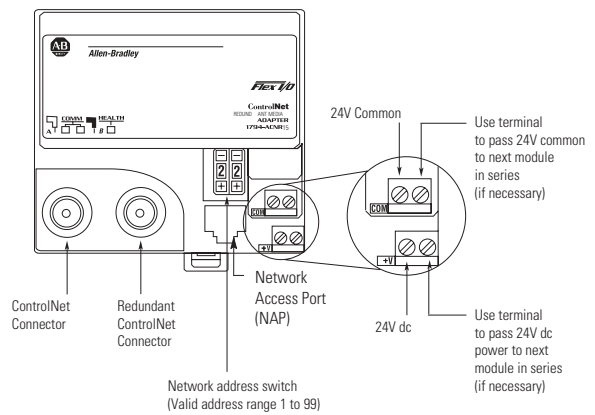
Pin 1 24Vdc  
Pin 2 24Vdc  
Pin 3 Return  
Pin 4 Return

## 1794 FLEX I/O Modules

### 1794-ACN15, 1794-ACN15K



### 1794-ACNR15, 1794-ACNR15K



**WARNING**



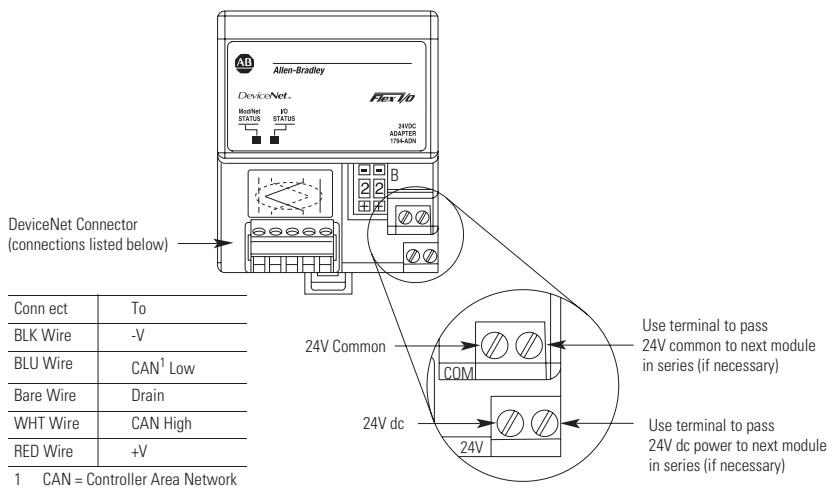
If you connect or disconnect the ControlNet cable with power applied to the adapter or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

**WARNING**



If you connect or disconnect the ControlNet cable with power applied to the adapter or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

### 1794-ADN, 1794-ADNK



**ATTENTION**



When connecting wiring, torque terminal screws D, E, F and G to 7 pound-inches (0.8Nm).

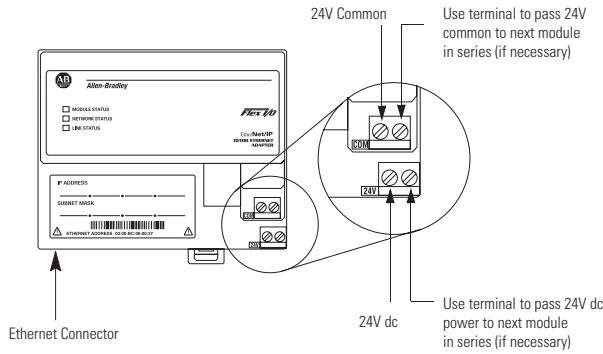
Power wiring must be less than 3 meters (9.8 ft) in length.

**WARNING**



If you connect or disconnect the DeviceNet cable with power applied to the adapter or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

**1794-AENT**

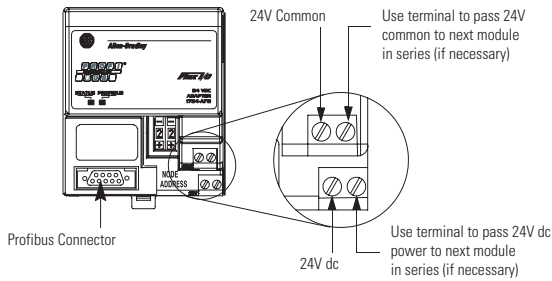


**WARNING**



If you connect or disconnect the Ethernet cable with power applied to the adapter or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

**1794-APB**



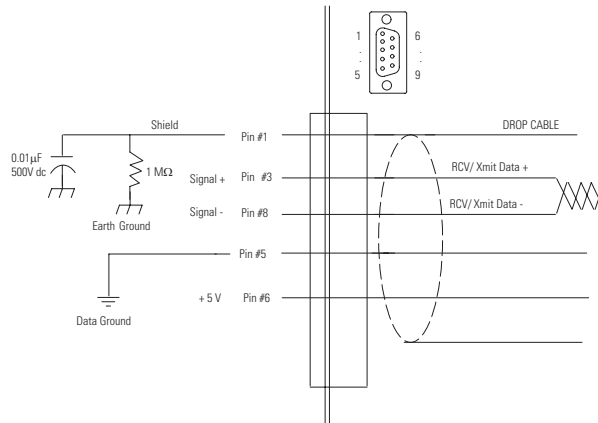
**WARNING**



When you connect or disconnect the PROFIBUS cable while power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

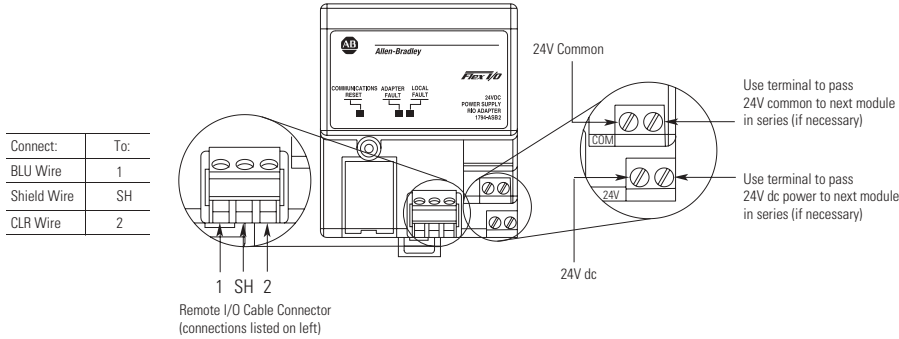
Connect the PROFIBUS drop cable to the 9-pin D-shell connector according to the following pin assignments and graphic:

Pin #	RS-485 Reference	Signal	Description
1		Shield	Shield, RC to earth ground
2		RP	not used
3	B/B'	RXD/TXD-P	Receive/transmit data - P
4		CTNR-P	not used
5	C/C'	DGND	Data ground
6		VP	Voltage plus (+5V)
7		RP	not used
8	A/A'	RXD/TXD-N	Receive/transmit data - N
9		CTNR-N	not used
Metal Shell			Earth Ground





**1794-ASB, 1794-ASB2, 1794-ASBK, 1794-ASB2K**



**ATTENTION**



If this is the last adapter, you must terminate the remote I/O link here. Use a terminating resistor connected across terminals 1 and 2. Refer to your processor manual for information on the size of the resistor.

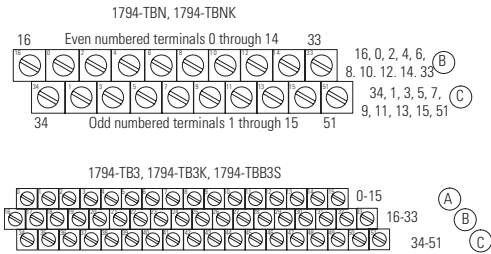
Power wiring must be less than 10 meters (33ft) in length.

**WARNING**



If you connect or disconnect the network cable with power applied to the adapter or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

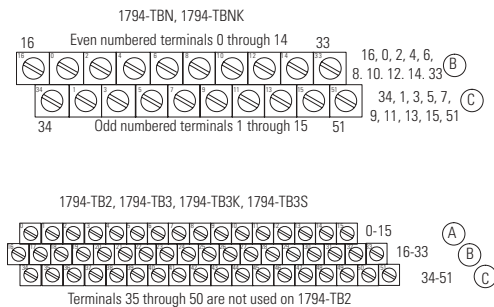
**1794-IA16**



Channel	Input Terminals			120V ac Supply <sup>1</sup>	Channel	Input Terminals			120V ac Supply <sup>1</sup>
	TB3, TB3K, TB3S	TBN, TBNK	TB3, TB3K, TB3S			TB3, TB3K, TB3S	TBN, TBNK	TB3, TB3K, TB3S	
0	A-0	B-0	C-35		8	A-8	B-8	C-43	
1	A-1	C-1	C-36		9	A-9	C-9	C-44	
2	A-2	B-2	C-37		10	A-10	B-10	C-45	
3	A-3	C-3	C-38		11	A-11	C-11	C-46	
4	A-4	B-4	C-39		12	A-12	B-12	C-47	
5	A-5	C-5	C-40		13	A-13	C-13	C-48	
6	A-6	B-6	C-41		14	A-14	B-14	C-49	
7	A-7	C-7	C-42		15	A-15	C-15	C-50	

A = Input terminals on the 1794-TB3, TB3K and TB3S. B0 - B14 and C1 - C15 are input terminals on the 1794-TBN and TBNK.  
 B = B-16 through B-33 are internally connected on the 1794-TB3, TB3K and -TB3S. B-16 and B-33 are internally connected on the 1794-TBN and TBNK. Connect 120V ac L2 to B-16.  
 C = C-34 through C-51 are internally connected on the 1794-TB3, TB3K and -TB3S. C-34 and C-51 are internally connected on the 1794-TBN and TBNK. Connect 120V ac L1 to C-34.  
<sup>1</sup> - Auxiliary terminal strips are required when using the 1794-TBN or TBNK.

**1794-IA8, 1794-IA8K**

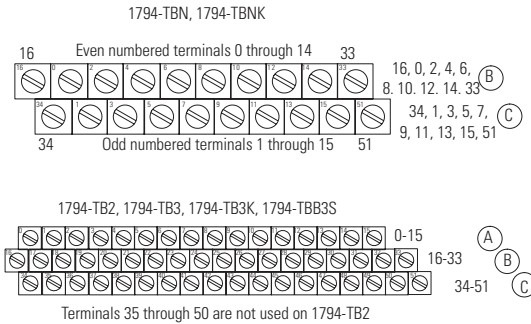


Input Channel	1794-TB2, 1794-TB3, 1794-TB3K, 1794-TBB3S		1794-TBN, 1794-TBNK	
	Input Terminals	120V ac Supply	Input Terminals	120V ac Supply
0	A-0	A-1/C-35	B-0	C-1 <sup>2</sup>
1	A-2	A-3/C-37	B-2	C-3 <sup>2</sup>
2	A-4	A-5/C-39	B-4	C-5 <sup>2</sup>
3	A-6	A-7/C-41	B-6	C-7 <sup>2</sup>
4	A-8	A-9/C-43	B-8	C-9 <sup>2</sup>
5	A-10	A-11/C-45	B-10	C-11 <sup>2</sup>
6	A-12	A-13/C-47	B-12	C-13 <sup>2</sup>
7	A-14	A-15/C-49	B-14	C-15 <sup>2</sup>

A = input terminals  
 B = common terminals  
 C = power terminals (C-34 through C-51 for TB3, TB3K and TB3S; C-34 and C-51 for TB2)  
 B = even numbered terminals B-0 through B-14, ac common terminals B-16 and B-33  
 C = Power Terminals C-34 and C-51, and odd numbered terminals 1 through 15

Connect 120V ac L2 (common) to B-16  
 Connect 120V ac L1 to C-34

- 1 A-1, 3, 5, 7, 9, 11, 13 and 15 on 1794-TB3, -TB3K, -TB3S, and -TB2 are internally connected in the module to 120V ac L1.
- 2 C-1, 3, 5, 7, 9, 11, 13 and 15 on 1794-TBN and TBNK are internally connected in the module to 120V ac L1.



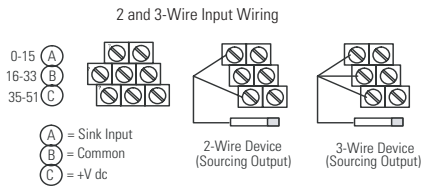
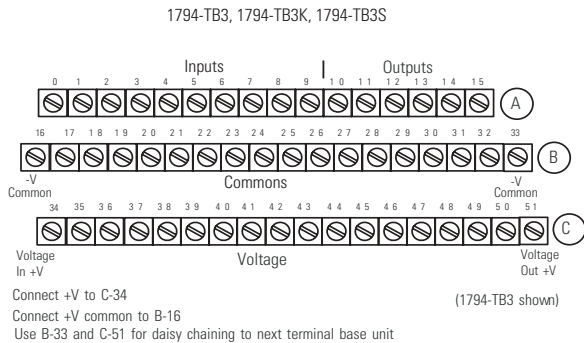
1794-IA8I

Input Channel	1794-TB2, 1794-TB3, 1794-TB3K, 1794-TBB3S		1794-TBN, 1794-TBNK	
	Input Terminals	120V ac Common L2	Input Terminals	120V ac Common L2
0	A-0	A-1	B-0	C-1
1	A-2	A-3	B-2	C-3
2	A-4	A-5	B-4	C-5
3	A-6	A-7	B-6	C-7
4	A-8	A-9	B-8	C-9
5	A-10	A-11	B-10	C-11
6	A-12	A-13	B-12	C-13
7	A-14	A-15	B-14	C-15

A = even numbered input terminals 0 thru 14 for customer input connections; corresponding odd numbered 120V ac common L2 terminals 1 through 15 for customer connections from isolated power supply  
 B = even numbered input terminals 0 through 14 for customer input connections  
 C = odd numbered terminals 1 through 15 for 120V ac L2 common connections from isolated power supply

Auxiliary terminal strips are required to connect 120V ac L1 of each isolated power supply to the input device that it is driving.

1794-IB10X0B6

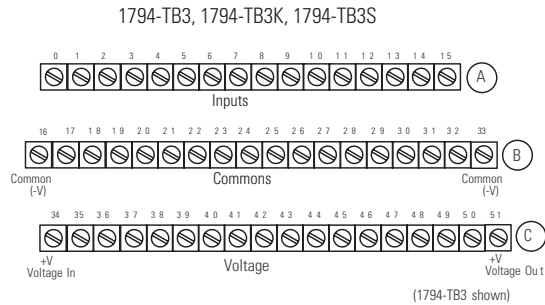


Sink Input Channel	Input <sup>1</sup>	Common	Supply
0	A-0	B-17	C-35
1	A-1	B-18	C-36
2	A-2	B-19	C-37
3	A-3	B-20	C-38
4	A-4	B-21	C-39
5	A-5	B-22	C-40
6	A-6	B-23	C-41
7	A-7	B-24	C-42
8	A-8	B-25	C-43
9	A-9	B-26	C-44
Source Output Channel			
0	A-10	B-27	C-45
1	A-11	B-28	C-46
2	A-12	B-29	C-47
3	A-13	B-30	C-48
4	A-14	B-31	C-49
5	A-15	B-32	C-50
+V dc	C-34 through C-51		
Common	B-16 through B-33		

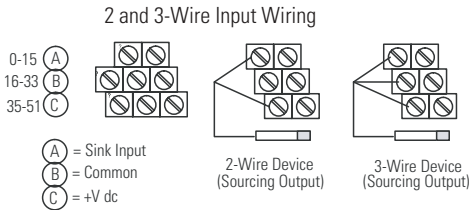
1. Two-wire input devices use input and supply terminals. Three-wire devices use input, common and supply terminals.

+V common internally connected to terminal 16 through 33.  
 +V dc power internally connected to terminal 34 through 51.

1794-IB16, 1794-IB16K, 1794-IB8



Connect +V to C-34  
Connect +V common to B-16  
Use B-33 and C-51 for daisy chaining to next terminal base unit

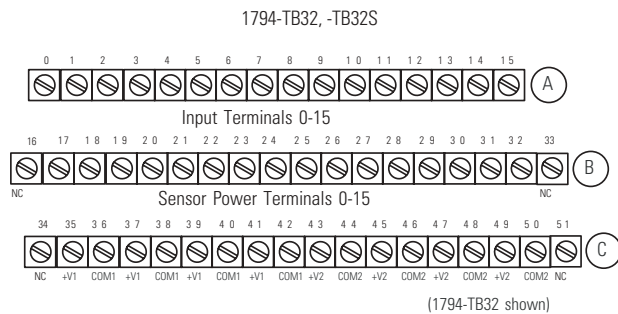


Input Channel <sup>1</sup>	Input Terminal	Supply Terminal	Common <sup>2</sup> Terminal
0	A-0	C-35	B-17
1	A-1	C-36	B-18
2	A-2	C-37	B-19
3	A-3	C-38	B-20
4	A-4	C-39	B-21
5	A-5	C-40	B-22
6	A-6	C-41	B-23
7	A-7	C-42	B-24
8	A-8	C-43	B-25
9	A-9	C-44	B-26
10	A-10	C-45	B-27
11	A-11	C-46	B-28
12	A-12	C-47	B-29
13	A-13	C-48	B-30
14	A-14	C-49	B-31
15	A-15	C-50	B-32
+V dc	C-34 through C-51		
Common	B-16 through B-33		

- 1794-IB8 - Inputs 0 through 7; 1794-IB16 - Inputs 0 through 15
- Two-wire input devices use input and supply terminals. Three-wire devices use input, common and supply terminals.

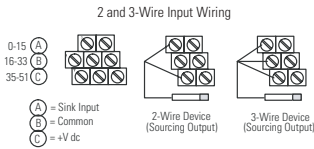
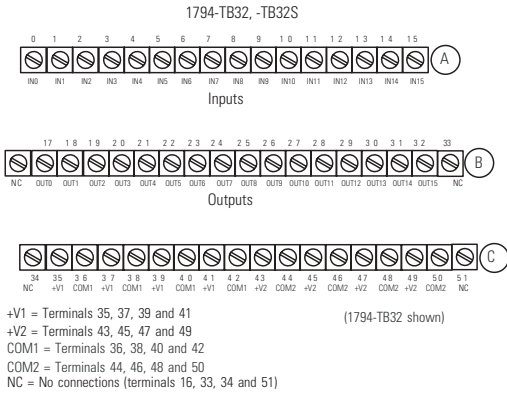
+V common internally connected to terminal 16 through 33.  
+V dc power internally connected to terminal 34 through 51.

1794-IB16D



+V2 = Terminals 43, 45, 47 and 49 - Voltage applied to Inputs 0-15 and Sensor power 0-15  
C OM1, COM2 = Terminals 36, 38, 40, 42, 44, 46, 48 and 50 - Common for inputs 0 through 15 and sensor power 0 through 15  
NC = No connections (terminals 16, 33, 34 and 51)  
+V1 = Terminals 35, 37, 39 and 41 (not used)

Input Channel	Input Terminal	Sensor Power Terminal	Common	Supply
0	A-0	B-17	-V common connected to terminals 36, 38, 40, 42, 44, 46, 48 and 50	+V2 connected to terminals 43, 45, 47 and 49
1	A-1	B-18		
2	A-2	B-19		
3	A-3	B-20		
4	A-4	B-21		
5	A-5	B-22		
6	A-6	B-23		
7	A-7	B-24		
8	A-8	B-25		
9	A-9	B-26		
10	A-10	B-27		
11	A-11	B-28		
12	A-12	B-29		
13	A-13	B-30		
14	A-14	B-31		
15	A-15	B-32		
+V2 dc power	Power terminals 43, 45, 47 and 49 (power terminals are internally connected together in the module)			
COM dc	Common terminals 36, 38, 40, 42, 44, 46, 48 and 50 (common terminals are internally connected together in the module)			



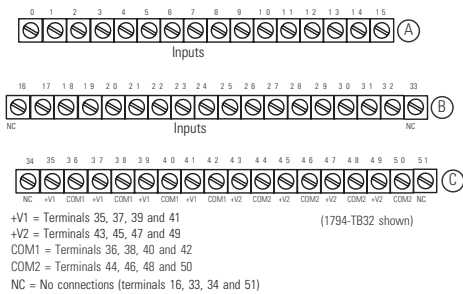
1794-IB16XOB16P

Input Channel	Input Terminal	Common	Supply <sup>1</sup>
0	A-0	V1 common connected to terminals 36, 38, 40 and 42	+V1 connected to terminals 35, 37, 39 and 41
1	A-1		
2	A-2		
3	A-3		
4	A-4		
5	A-5		
6	A-6		
7	A-7		
8	A-8		
9	A-9		
10	A-10		
11	A-11		
12	A-12		
13	A-13		
14	A-14		
15	A-15		
+V1 dc power	Power terminals 35, 37, 39 and 41		
Com1 dc Return	Common terminals 36, 38, 40 and 42		

Output Channel	Output Terminal	Common
0	B-17	V2 Return connected to terminals 44, 46, 48 and 50
1	B-18	
2	B-19	
3	B-20	
4	B-21	
5	B-22	
6	B-23	
7	B-24	
8	B-25	
9	B-26	
10	B-27	
11	B-28	
12	B-29	
13	B-30	
14	B-31	
15	B-32	
+V2 dc power	Power terminals 43, 45, 47 and 49	
Com2 dc Return	Common terminals 44, 46, 48 and 50	

1. 2-wire input devices use input and supply terminals; 3-wire devices use input, common and supply terminals.

1794-TB32 and 1794-TB32S



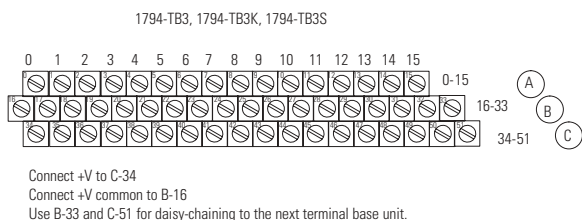
1794-IB32

Input Channel	Input Terminal	Common	Supply <sup>1</sup>
0	A-0	V1 common connected to terminals 36, 38, 40 and 42	+V1 connected to terminals 35, 37, 39 and 41
1	A-1		
2	A-2		
3	A-3		
4	A-4		
5	A-5		
6	A-6		
7	A-7		
8	A-8		
9	A-9		
10	A-10		
11	A-11		
12	A-12		
13	A-13		
14	A-14		
15	A-15		
+V1 dc power	Power terminals 35, 37, 39 and 41		
Com1 dc Return	Common terminals 36, 38, 40 and 42		

Input Channel	Input Terminal	Common	Supply <sup>1</sup>
16	B-17	V2 common connected to terminals 44, 46, 48 and 50	+V2 connected to terminals 43, 45, 47 and 49
17	B-18		
18	B-19		
19	B-20		
20	B-21		
21	B-22		
22	B-23		
23	B-24		
24	B-25		
25	B-26		
26	B-27		
27	B-28		
28	B-29		
29	B-30		
30	B-31		
31	B-32		
+V2 dc power	Power terminals 43, 45, 47 and 49		
Com2 dc Return	Common terminals 44, 46, 48 and 50		

1. 2-wire input devices use input and supply terminals; 3-wire devices use input, common and supply terminals.

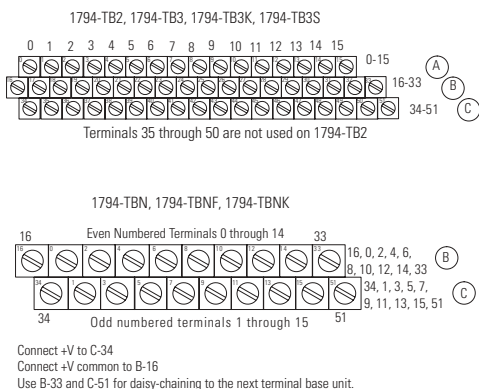
**1794-IC16**



1794-TB3, 1794-TB3K, 1794-TB3S							
Input Channel	Input Terminal	Supply Terminal	Common Terminal <sup>1</sup>	Input Channel	Input Terminal	Supply Terminal	Common Terminal <sup>1</sup>
0	A-0	C-35	B-17	8	A-8	C-43	B-25
1	A-1	C-36	B-18	9	A-9	C-44	B-26
2	A-2	C-37	B-19	10	A-10	C-45	B-27
3	A-3	C-38	B-20	11	A-11	C-46	B-28
4	A-4	C-39	B-21	12	A-12	C-47	B-29
5	A-5	C-40	B-22	13	A-13	C-48	B-30
6	A-6	C-41	B-23	14	A-14	C-49	B-31
7	A-7	C-42	B-24	15	A-15	C-50	B-32
Common	B-16 through B-33			+V dc		C-34 through C-51	

1. 2-wire devices use input and supply terminals; 3-wire input devices use input, common and supply terminals.

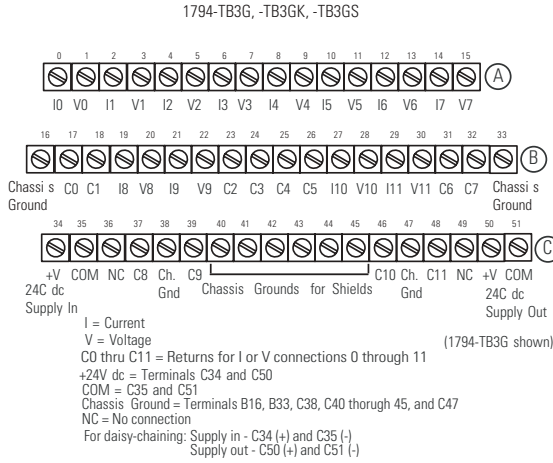
**1794-ID2**



	Terminal Base Units 1794-TB2, -TB3, -TB3K and -TB3S			Terminal Base Units <sup>1</sup> 1794-TBN, -TBNK and -TBNF	Terminal Base Units 1794-TB2, -TB3, -TB3K and -TB3S			Terminal Base Units <sup>1</sup> 1794-TBN, -TBNK and -TBNF	
	Input	DV dc (common)	12/24V dc	Input	Input	OV dc (common)	12/24V dc	Input	
Pulse Counter Channel 0					Pulse Counter Channel 1				
A+	A-0	B-17	C-35	B-0	A+	A-8	B-25	C-43	B-8
A-	A-1	B-18	C-36	C-1	A-	A-9	B-26	C-44	C-9
B+	A-2	B-19	C-37	B-2	B+	A-10	B-27	C-45	B-10
B-	A-3	B-20	C-38	C-3	B-	A-11	B-28	C-46	C-11
Z+	A-4	B-21	C-39	B-4	Z+	A-12	B-29	C-47	B-12
Z-	A-5	B-22	C-40	C-5	Z-	A-13	B-30	C-48	C-13
G+	A-6	B-23	C-41	B-6	G+	A-14	B-31	C-49	B-14
G-	A-7	B-24	C-42	C-7	G-	A-15	B-32	C-50	C-15
Common	Terminals 16 and 33 (1794-TB2, -TBN, -TBNK and -TBNF) Terminals 16 through 33 (1794-TB3, -TB3K, -TB3S)								
+V dc	Terminals 34 and 51 (1794-TB2, -TBN, -TBNK and -TBNF) Terminals 34 through 51 (1794-TB3, -TB3K, -TB3S)								

1. Auxiliary terminal blocks are required when using these terminal base units.

1794-IE12



**ATTENTION**



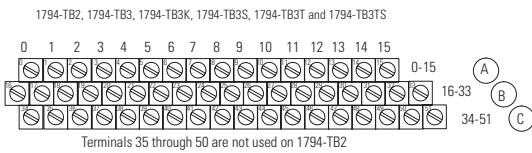
To reduce susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 33 ft (10m) for dc power cabling.

Do not daisy chain power or ground from this terminal base unit to any ac or dc digital module terminal base units.

Do not exceed a length of 33 ft (10m) for signal cabling.

Channel	Signal Type	Label Marking	1794-TB3G, -TB3GK, -TB3GS	
			Input	Common Terminal
Input 0	Current	I0	A-0	B-17
	Voltage	V0	A-1	
Input 1	Current	I1	A-2	B-18
	Voltage	V1	A-3	
Input 2	Current	I2	A-4	B-23
	Voltage	V2	A-5	
Input 3	Current	I3	A-6	B-24
	Voltage	V3	A-7	
Input 4	Current	I4	A-8	B-25
	Voltage	V4	A-9	
Input 5	Current	I5	A-10	B-26
	Voltage	V5	A-11	
Input 6	Current	I6	A-12	B-31
	Voltage	V6	A-13	
Input 7	Current	I7	A-14	B-32
	Voltage	V7	A-15	
Input 8	Current	I8	B-19	C-37
	Voltage	V8	B-20	
Input 9	Current	I9	B-21	C-39
	Voltage	V9	B-22	
Input 10	Current	I10	B-27	C-46
	Voltage	V10	B-28	
Input 11	Current	I11	B-29	C-48
	Voltage	V11	B-30	
-V dc Common	Terminals 35 and 51 are internally connected in the terminal base unit.			
+V dc Power	Terminals 34 and 50 are internally connected in the terminal base unit.			
Chassis Ground (Shield)	Terminals 16, 33, 38, 40 through 45, and 47 are internally connected to chassis ground.			

1794-IE4XOE2



**ATTENTION**

Only connect either a voltage input or a current input per channel, not both.



To reduce susceptibility to noise, power analog and digital modules from separate power supplies. Do not exceed a length of 3M (9.8 ft) for DC power cabling.

Connect +V to C-34  
 Connect +V common to B-16  
 Use B-33 and C-51 for daisy-chaining to the next terminal base unit.

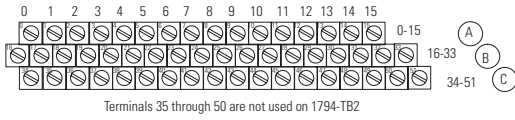
Channel	Signal Type	TB2, TB3, TB3K, TB3S, TB3T, TB3TS	TB2, TB3, TB3K, TB3S	TB3T, TB3TS		Channel	Signal Type	TB2, TB3, TB3K, TB3S, TB3T, TB3TS	Shield
		Input Terminals	Common Terminals		Output Terminals				
In 0	Current	A-0	B-17	B-17	C-39	Out 0	Current Signal	A-8	C-43
	Voltage	A-1	B-18	B-17	C-39		Current Common	A-9 <sup>1</sup>	C-43
In 1	Current	A-2	B-19	B-19	C-40	Out 1	Voltage Signal	A-10	C-44
	Voltage	A-3	B-20	B-19	C-40		Voltage Common	A-11 <sup>1</sup>	C-44
In 2	Current	A-4	B-21	B-21	C-41	Out 1	Current Signal	A-12	C-45
	Voltage	A-5	B-22	B-21	C-41		Current Common	A-13 <sup>1</sup>	C-45
In 3	Current	A-6	B-23	B-23	C-42	Out 1	Voltage Signal	A-14	C-46
	Voltage	A-7	B-24	B-23	C-42		Voltage Common	A-15 <sup>1</sup>	C-46
Common for TB2, TB3, TB3K, TB3S: B-16 through B-33 Common for TB3T and TB3TS: B16, 17, 19, 21, 23, 25, 27, 29, 31 and 33.						+V dc Power for 1794-TB2: C-34 and C-51; +V dc Power for 1794-TB3, TB3K and TB3S: C-34 through C-51 +V dc Power for 1794-TB3T and -TB3TS: C-34, 35, 50 and 51			

Connect any signal wiring shields to functional ground as near as possible to the module when using the 1794-TB2, -TB3, -TB3K, and -TB3S. With the 1794-TB3T and -TB3TS, use terminals C-39 through C-46.

1. A-9, A-11, A-13 and A-15 are internally connected in the module to +V dc common.

**1794-IE8, 1794-IE8K**

1794-TB2, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3T, 1794-TB3TS



Terminals 35 through 50 are not used on 1794-TB2

**ATTENTION** Only connect either a voltage input or a current input per channel, not both.  
To reduce susceptibility to noise, power analog and digital modules from separate power supplies. Do not exceed a length of 3M (9.8 ft) for DC power cabling.



Connect +V to C-34  
Connect +V common to B-16  
Use B-33 and C-51 for daisy-chaining to the next terminal base unit.

Channel	Signal Type	TB2, TB3, TB3K, TB3S, TB3T, TB3TS	TB2, TB3, TB3K, TB3S	TB3T, TB3TS		Channel	Signal Type	TB2, TB3, TB3K, TB3S, TB3T, TB3TS	TB2, TB3, TB3K, TB3S	TB3T, TB3TS	
		Input Terminals	Common Terminals	Shield	Input Terminals			Common Terminals	Shield		
0	Current	A-0	B-17	B-17	C-39	4	Current	A-8	B-25	B-25	C-43
	Voltage	A-1	B-18	B-17	C-39		Voltage	A-9	B-26	B-25	C-43
1	Current	A-2	B-19	B-19	C-40	5	Current	A-10	B-27	B-27	C-44
	Voltage	A-3	B-20	B-19	C-40		Voltage	A-11	B-28	B-27	C-44
2	Current	A-4	B-21	B-21	C-41	6	Current	A-12	B-29	B-29	C-45
	Voltage	A-5	B-22	B-21	C-41		Voltage	A-13	B-30	B-29	C-45
3	Current	A-6	B-23	B-23	C-42	7	Current	A-14	B-31	B-31	C-46
	Voltage	A-7	B-24	B-23	C-42		Voltage	A-15	B-32	B-31	C-46

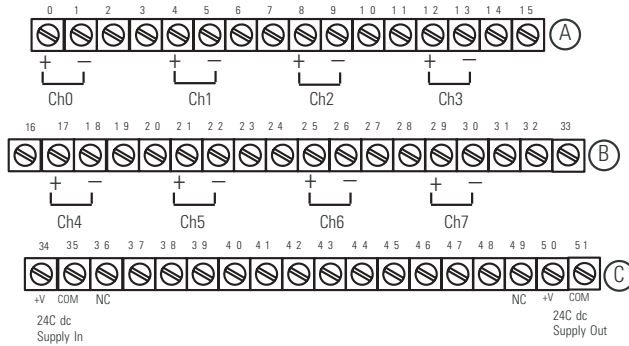
Common for 1794-TB2, -TB3S: B-16 through B-33  
Common for 1794-TB3T and -TB3TS: B-16, 17, 19, 21, 23, 25, 27, 29, 31 and 33

+V dc Power for 1794-TB2: C-34 and C-51;  
+V dc Power for 1794-TB3, TB3K and TB3S: C-34 through C-51  
+V dc Power for 1794-TB3T and -TB3TS: C-34, 35, 50 and 51

Connect any signal wiring shields to functional ground as near as possible to the module when using the 1794-TB2, -TB3, -TB3K, and -TB3S. With the 1794-TB3T and -TB3TS, use terminals C-39 through C-46.

**1794-IE8H**

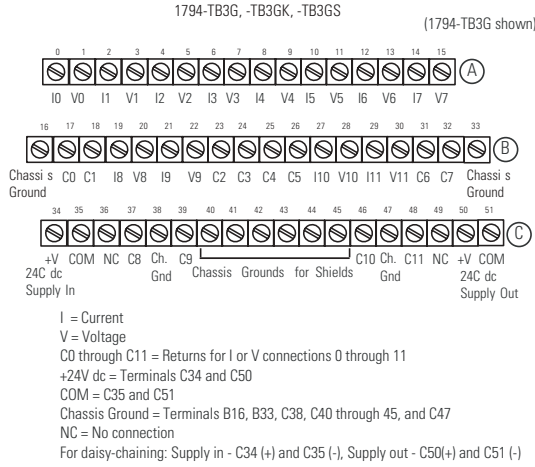
1794-TB3G, -TB3GK, -TB3GS (1794-TB3G shown)



+24V dc = Terminals C-34 and C-50  
COM = C-35 and C-51  
NC = No connection  
For daisy-chaining: Supply in - C-34 (+) and C-35 (-)  
Supply out - C-50 (+) and C-51 (-)

Input	Input Source	Input Signal	Input Return	Input	Input Source	Input Signal	Input Return
Input 0	A-0	A-1	A-2	Input 4	B-17	B-18	B-19
Input 1	A-4	A-5	A-6	Input 5	B-21	B-20	B-23
Input 2	A-8	A-9	A-10	Input 6	B-25	B-26	B-27
Input 3	A-12	A-13	A-14	Input 7	B-29	B-30	B-31
+V	Terminals 34 and 50						
-V	Terminals 35 and 51						

1794-IE8XOE4



**ATTENTION**



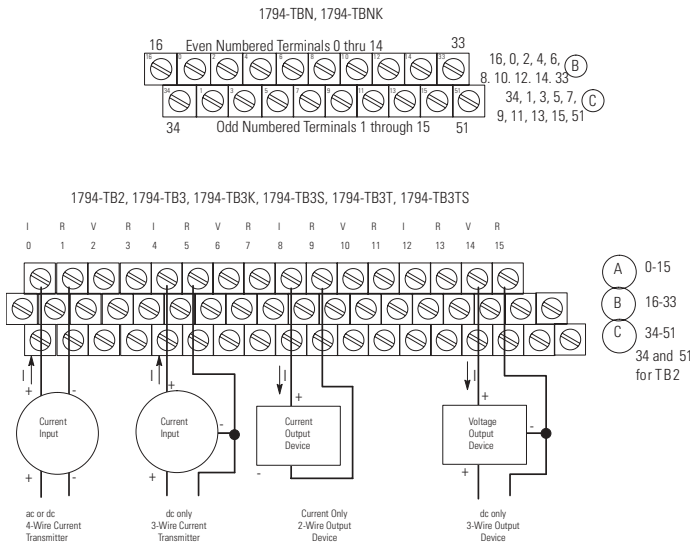
To reduce susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 33 ft (10m) for dc power cabling.

Do not daisy chain power or ground from this terminal base unit to any ac or dc digital module terminal base units.

Do not exceed a length of 33 ft (10m) for signal cabling.

Channel	Signal Type	Label Marking	1794-TB3G, -TB3GK, -TB3GS	
			Input/Output	Common Terminal
Input 0	Current	I0	A-0	B-17
	Voltage	V0	A-1	
Input 1	Current	I1	A-2	B-18
	Voltage	V1	A-3	
Input 2	Current	I2	A-4	B-23
	Voltage	V2	A-5	
Input 3	Current	I3	A-6	B-24
	Voltage	V3	A-7	
Input 4	Current	I4	A-8	B-25
	Voltage	V4	A-9	
Input 5	Current	I5	A-10	B-26
	Voltage	V5	A-11	
Input 6	Current	I6	A-12	B-31
	Voltage	V6	A-13	
Input 7	Current	I7	A-14	B-32
	Voltage	V7	A-15	
Output 0	Current	I8	B-19	C-37
	Voltage	V8	B-20	
Output 1	Current	I9	B-21	C-39
	Voltage	V9	B-22	
Output 2	Current	I10	B-27	C-46
	Voltage	V10	B-28	
Output 3	Current	I11	B-29	C-48
	Voltage	V11	B-30	
-V dc Common	Terminals 35 and 51 are internally connected in the terminal base unit.			
+V dc Power	Terminals 34 and 50 are internally connected in the terminal base unit.			
Chassis Ground (Shield)	Terminals 16, 33, 38, 40 through 45, and 47 are internally connected to chassis ground.			

1794-IF2XOF2I



**ATTENTION**



Only connect either a voltage signal or a current signal per channel, not both.

To reduce susceptibility to noise, power analog and digital modules from separate power supplies. Do not exceed a length of 3M (9.8 ft) for DC power cabling.

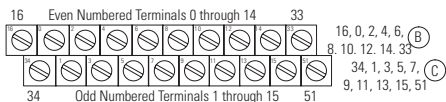
Channel	Signal Type	Label Markings	1794-TB2, -TB3, -TB3K, -TB3S, -TB3T, -TB3TS		1794-TBN, -TBNK
			Input/Output Terminal	Shield (TB3T/TB3TS)	
Input 0	Current Input	I0	A-0	C-39	B-0
	Current Return	I0 Ret	A-1		C-1
	Voltage Input	V0	A-2		B-2
	Voltage Return	V0 Ret	A-3		C-3
Input 1	Current Input	I1	A-4	C-41	B-4
	Current Return	I1 Ret	A-5		C-5
	Voltage Input	V1	A-6		C-42
	Voltage Return	V1 Ret	A-7		C-7
Output 0	Current Output	I0	A-8	C-43	B-8
	Current Return	I0 Ret	A-9		C-9
	Voltage Output	V0	A-10		C-44
	Voltage Return	V0 Ret	A-11		C-11
Output 1	Current I Output	I1	A-12	C-45	B-12
	Current Return	I1 Ret	A-13		C-13
	Voltage Output	V1	A-14		B-14
	Voltage Return	V1 Ret	A-15		C-15
Common	TB2, TB3, TB3K TB3S: Terminals 16 through 33 are internally connected in the terminal base unit. TB3T, TB3TS: Terminals 16, 17, 19, 21, 23, 25, 27, 29, 31, and 33 are internally connected in the terminal base unit. TBN, TBNK: Terminals 16 and 33 are internally connected in the terminal base unit.				
+V dc	TB2, TBN, TBNK: Terminals 34 and 51 are internally connected in the terminal base unit. TB3, TB3K, TB3S: Terminals 34 through 51 are internally connected in the terminal base unit. TB3T, TB3TS: Terminals 34, 35, 50, and 51 are internally connected in the terminal base unit.				
Chassis Gnd	TB3T, TB3TS: Terminals 39 through 46 are internally connected to chassis gnd				

Connect any signal wiring shields to functional ground as near as possible to the module when using the 1794-TB2, -TB3, -TB3K, and -TB3S. With the 1794-TB3T and -TB3TS, use terminals C-39 through C-46 for signal wiring shields.  
 Connect +V to C-34.  
 Connect +V common to B-16.  
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

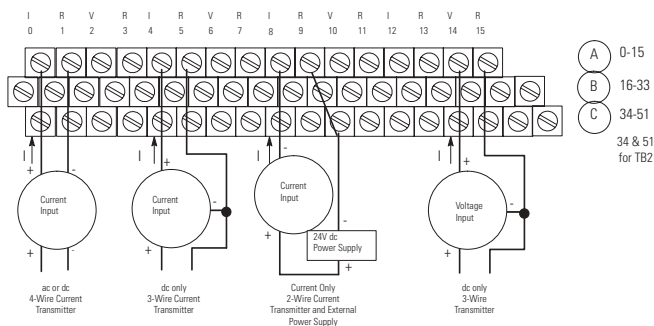


1794-IF4I

1794-TBN, 1794-TBNK



1794-TB2, 1794-TB3, 1794-TB3K, 1794-TB3S, 1794-TB3T, 1794-TB3TS



**ATTENTION** Only connect either a voltage input or a current input per channel, not both.



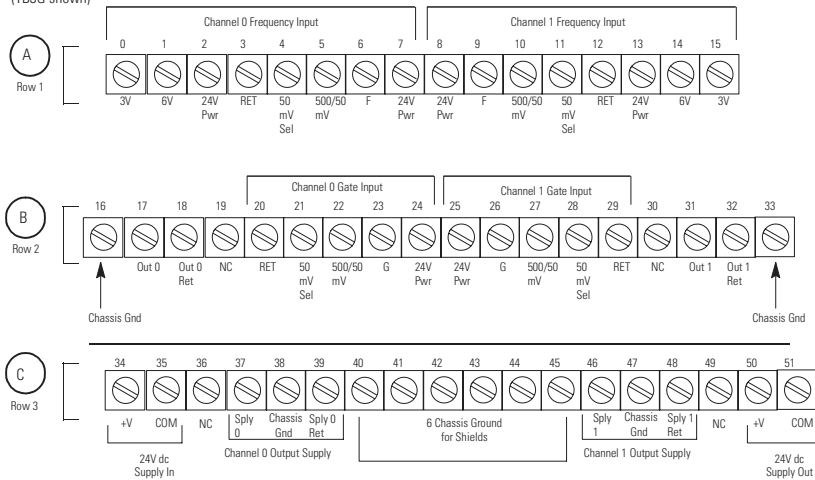
To reduce susceptibility to noise, power analog and digital modules from separate power supplies. Do not exceed a length of 3M (9.8 ft) for DC power cabling.

1794-TB2, -TB3, -TB3K, -TB3S, -TB3T, -TB3TS					1794-TBN, -TBNK
Input Channel	Signal Type	Label Markings	Input Terminal	Shield d (TB3T/TB3TS)	Input Terminal
0	Current Input	I0	A-0	C-39	B-0
	Current Return	I0 Ret	A-1		C-1
	Voltage Input	V0	A-2	C-40	B-2
	Voltage Return	V0 Ret	A-3		C-3
1	Current Input	I1	A-4	C-41	B-4
	Current Return	I1 Ret	A-5		C-5
	Voltage Input	V1	A-6	C-42	B-6
	Voltage Return	V1 Ret	A-7		C-7
2	Current Input	I2	A-8	C-43	B-8
	Current Return	I2 Ret	A-9		C-9
	Voltage Input	V2	A-10	C-44	B-10
	Voltage Return	V2 Ret	A-11		C-11
3	Current Input	I3	A-12	C-45	B-12
	Current Return	I3 Ret	A-13		C-13
	Voltage Input	V3	A-14	C-46	B-14
	Voltage Return	V3 Ret	A-15		C-15
Common	TB2, TB3, TB3K, TB3S: Terminals 16 through 33 are internally connected in the terminal base unit TB3T, TB3TS: Terminals 16, 17, 19, 21, 23, 25, 27, 29, 31, and 33 are internally connected in the terminal base unit TBN, TBNK: Terminals 16 and 33 are internally connected in the terminal base unit				
+V dc	TB2, TBN, TBNK: Terminals 34 and 51 are internally connected in the terminal base unit TB3, TB3K, TB3S: Terminals 34 through 51 are internally connected in the terminal base unit TB3T, TB3TS: Terminals 34, 35, 50, and 51 are internally connected in the terminal base unit				
Chassis Gnd	TB3T, TB3TS: Terminals 39 through 46 are internally connected to chassis gnd				

Connect any signal wiring shields to functional ground as near as possible to the module when using the 1794-TB2, -TB3, -TB3K, -TB3S, -TBN and -TBNK. With the 1794-TB3T and -TB3TS, use terminals C-39 through C-46 for signal wiring shields. Connect +V to C-34. Connect +V common to B-16. Use B-33 and C-51 for daisy chaining to the next terminal base unit.

1794-IJ2, 1794-IJ2K

Connections are for 1794-TB3G, -TB3GK and -TB3GS (TB3G shown)



All '24V Pwr' and 'RET' terminals are sourced power provided for the sensors. Do not connect external power to these terminals.

These outputs provide power for up to four 24Vdc devices at 15mA each—for a total of 60mA. Channel 0 '24V Pwr' and channel 1 '24V Pwr' are each current limited to 30mA maximum.

NC = No connect

Type of Inputs	Channel 0 Terminals <sup>5</sup>			Channel 1 Terminals <sup>5</sup>		
	Power	Input	RET <sup>6</sup>	Power	Input	RET <sup>6</sup>
Frequency						
24V dc IEC 3 Proximity <sup>1,2</sup>	A-7	A-6	A-3	A-8	A-9	A-12
24V dc Contact Switch <sup>3</sup>	A-7	A-6	A-3	A-8	A-9	A-12
500mV ac Magnetic Pickup	A-7	A-5	A-3	A-8	A-10	A-12
50mV ac Magnetic Pickup <sup>4</sup>	A-7	A-5	A-3	A-8	A-10	A-12
6V ac Vortex	A-2	A-1	A-3	A-13	A-14	A-12
3V ac Vortex	A-2	A-0	A-3	A-13	A-15	A-12

- 1 As defined by standard IEC 1131-2.
- 2 RET not used on 2-wire devices.
- 3 Add external resistor from 24V to F or G for wire-off detection (0.4mA).
- 4 Add a jumper between 50mV and RET (Frequency - channel 0-4 to 3; channel 1-11 to 12). (Gate - channel 0-21 to 20; channel 1-28 to 29).
- 5 Connect cable shields to Chassis Gnd terminals.
- 6 All 4 RET terminals (ch 0 and 1, Freq, Gate) are internally connected together.

Type of Inputs	Channel 0 Terminals <sup>5</sup>			Channel 1 Terminals <sup>5</sup>		
	Power	Input	RET <sup>6</sup>	Power	Input	RET <sup>6</sup>
Gate						
24V dc IEC 3 Proximity <sup>1,2</sup>	B-24	B-23	B-20	B-25	B-26	B-29
24V dc Contact Switch <sup>3</sup>	B-24	B-23	B-20	B-25	B-26	B-29
500mV ac Magnetic Pickup	B-24	B-22	B-20	B-25	B-27	B-29
50mV ac Magnetic Pickup <sup>4</sup>	B-24	B-22	B-20	B-25	B-27	B-29

- 1 As defined by standard IEC 1131-2.
- 2 RET not used on 2-wire devices.
- 3 Add external resistor from 24V to F or G for wire-off detection (0.4mA).
- 4 Add a jumper between 50mV and RET (Frequency - channel 0-4 to 3; channel 1-11 to 12). (Gate - channel 0-21 to 20; channel 1-28 to 29).
- 5 Connect cable shields to Chassis Gnd terminals.
- 6 All 4 RET terminals (ch 0 and 1, Freq, Gate) are internally connected together.

Output Alarm Connections	Channel 0 Terminals <sup>1</sup>				Channel 1 Terminals <sup>1</sup>			
	Sply +	Sply RET	Out +	Out RET	Sply +	Sply RET	Out +	Out RET
Supply Connection	C-37	C-39			C-46	C-48		
Output Connection			B-17	B-18			B-31	B-32

- 1 Connect cable shields to Chassis Gnd terminals.

**ATTENTION**

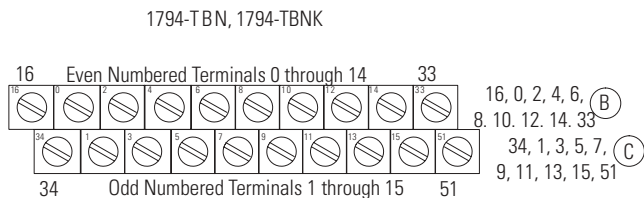


To reduce the susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 10m (33ft) for dc power cabling.

Do not daisy chain power or ground from this module to any ac or dc digital module terminal base unit.

Also, total current draw through the terminal base unit is limited to 10A. Separate power connections to the terminal base unit may be necessary.

**1794-IM8**

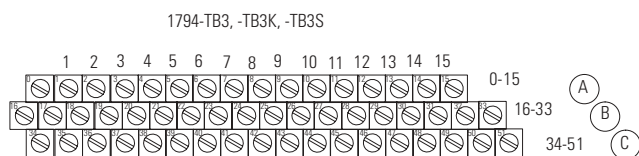


Connect 220V ac L2 to B-16; B-16 and B-33 are connected internally.  
 Connect 220V ac L1 to C-34; C-34 and C-51 are connected internally.  
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

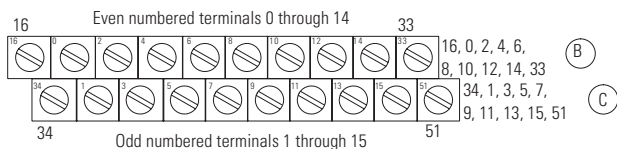
Input Channel	Input Terminals	220V ac Supply <sup>1</sup>
0	B-0	C-1
1	B-2	C-3
2	B-4	C-5
3	B-6	C-7
4	B-8	C-9
5	B-10	C-11
6	B-12	C-13
7	B-14	C-15

1. Terminals C-1, 3, 5, 7, 9, 11, 13 and 15 are connected internally to 220V ac L1.

**1794-IP4**



1794-TBN, -TBNK, -TBNF



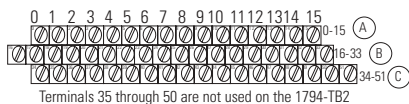
Connect +V to C-34  
 Connect +V common to B-16  
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

Channel	Signal Name <sup>1</sup>	Terminal Base Units 1794-TB3, -TB3K and -TB3S			Terminal Base Units <sup>2</sup> 1794-TBN, -TBNK -TBNF
		Input	0V dc (Common)	12/24V dc	Input
16-Bit Period Time Measurement					
0	N	A-0	B-17	C-35	B-0
	$\bar{N}$	A-1	B-18	C-36	C-1
1	N	A-2	B-19	C-37	B-2
	$\bar{N}$	A-3	B-20	C-38	C-3
2	N	A-4	B-21	C-39	B-4
	$\bar{N}$	A-5	B-22	C-40	C-5
3	N	A-6	B-23	C-41	B-6
	$\bar{N}$	A-7	B-24	C-42	C-7
32-Bit Period Time Measurement					
0	D	A-8	B-25	C-43	B-8
	$\bar{D}$	A-9	B-26	C-44	C-9
1	D	A-10	B-27	C-45	B-10
	$\bar{D}$	A-11	B-28	C-46	C-11
2	D	A-12	B-29	C-47	B-12
	$\bar{D}$	A-13	B-30	C-48	C-13
3	D	A-14	B-31	C-49	B-14
	$\bar{D}$	A-15	B-32	C-50	C-15
	Common	Terminals 16 through 33			Terminals 16 and 33
	+V dc	Terminals 34 through 51			Terminals 34 and 51

1 Any unused signals have to be connected to the associated common.  
 2 Auxiliary terminal blocks are required when using these terminal base units.

1794-IR8

1794-TB2, -TB3, -TB3K, -TB3S, -TB3T, -TB3TS



**ATTENTION**



Use the following Belden cables for connecting the RTD to the terminal base unit.

RTD Type	Length of Run/Humidity Level	Belden Cable Number
2-wire	Not applicable	9501
3-wire	Less than 100 ft (30.5m) with normal humidity	9533
	Over 100 ft (30.5m) or high humidity <sup>1</sup>	8350 3

<sup>1</sup> Greater than 55% for more than 8 hours

To reduce the susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 3m (9.8ft) for dc power cabling.

Do not daisy chain power or ground from the RTD terminal base unit to any ac or dc digital module terminal base unit.

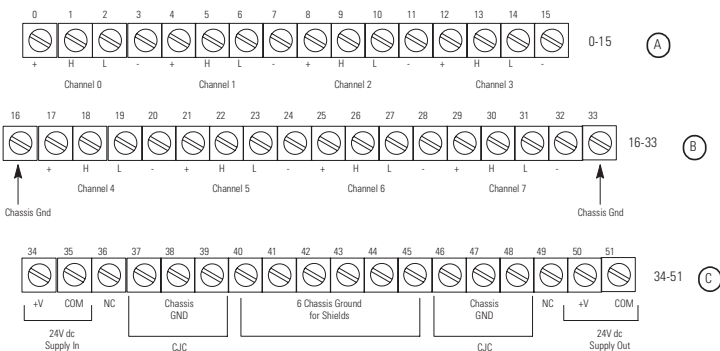
Channel	High Signal	Low Signal	Signal Return <sup>1</sup>	Shield Return	
				TB2, TB3, TB3S	TB3T, TB3TS
0	A-0	A-1	B-17	B-18	C-39
1	A-2	A-3	B-19	B-20	C-40
2	A-4	A-5	B-21	B-22	C-41
3	A-6	A-7	B-23	B-24	C-42
4	A-8	A-9	B-25	B-26	C-43
5	A-10	A-11	B-27	B-28	C-44
6	A-12	A-13	B-29	B-30	C-45
7	A-14	A-15	B-31	B-32	C-46
Common	B-16 through B-33 for 1794-TB2, -TB3, -TB3K and -TB3S B-16, B-17, B-19, B-21, B-23, B-25, B-27, B-29, B-31 and B-33 for 1794-TB3T and -TB3TS				
+V dc	C-34 through C-51 for 1794-TB3, -TB3K and -TB3S; C-34 and C-51 for 1794-TB2 C-34, C-35, C-50 and C-51 for 1794-TB3T and -TB3TS				

- When using a 2-wire RTD, jumper the signal return to the low signal terminal.
- B-18, B-20, B-22, B-24, B-26, B-28, B-30 and B-32 are tied to Common on 1794-TB2, -TB3, -TB3K, -TB3S; C-39 through C-46 are tied to chassis ground on 1794-TB3T and 1794-TB3TS

Connect +V to C-34  
Connect +V common to B-16  
Use B-33 and C-51 for daisy chaining to the next terminal base unit

1794-IRT8, 1794-IRT8K

Connections for 1794-TB3G, -TB3GK and -TB3GS (TB3G shown)

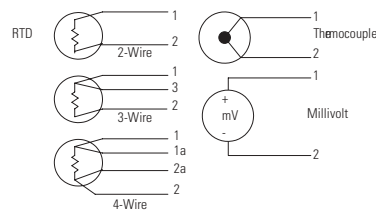


**ATTENTION**



To reduce the susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 3m (9.8ft) for dc power cabling.

Do not daisy chain power or ground from this module to any ac or dc digital module terminal base unit.



Type of Input	Connect the following				
	H	L	+	-	Shield <sup>1</sup>
RTD - 2-wire			1	2	
RTD - 3-wire		3	1	2	
RTD - 4-wire	1a	2a	1	2	
Thermocouple			1	2	
Millivolt			1	2	

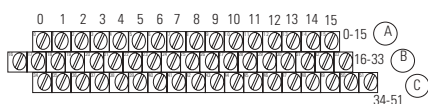
<sup>1</sup> Terminals B-16, B-33 and C-40 through C-45 are Chassis Gnd for signal wire shields.

RTD or Thermocouple Channel	1794-TB3G, -TB3GK and -TB3GS Terminal Base Units				
	High Signal Terminal (H)	Low Signal Terminal (L)	RTD Source Current (+)	Signal Return (-)	
0	A-1	A-2	A-0	A-3	
1	A-5	A-6	A-4	A-7	
2	A-9	A-10	A-8	A-11	
3	A-13	A-14	A-12	A-15	
4	B-18	B-19	B-17	B-20	
5	B-22	B-23	B-21	B-24	
6	B-26	B-27	B-25	B-28	
7	B-30	B-31	B-29	B-32	
+V dc	C-34 and 50 - Connect +V to C-34				
Common	C-35 and 51 - Connect +V common to C-35				

Input	CJC Sensor			
	+	Chassis Ground	-	CJC Tail <sup>1</sup>
CJC1	37	38	39	5 (22)
CJC2	46	47	48	12 (29)

<sup>1</sup> Use pins 5 and 12 when channels 0-7 are configured as thermocouples. Use pins 12 and 29 when only channels 4-7 are configured as thermocouples.

1794-TB2, -TB3, -TB3K, -TB3S, -TB3T, -TB3TS



Terminals 35 through 50 are not used on the 1794-TB2

**ATTENTION**



To reduce the susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 3m (9.8ft) for dc power cabling.

Do not daisy chain power or ground from this terminal base unit to any ac or dc digital module terminal base unit.

**1794-IT8**

Channel	High Signal	Low Signal	Shield Return <sup>1</sup>	
			TB2, TB3, TB3K, TB3S	TB3T, TB3TS
0	A-0	A-1	B-17	C-39
1	A-2	A-3	B-19	C-40
2	A-4	A-5	B-21	C-41
3	A-6	A-7	B-23	C-42
4	A-8	A-9	B-25	C-43
5	A-10	A-11	B-27	C-44
6	A-12	A-13	B-29	C-45
7	A-14	A-15	B-31	C-46
Common	B-16 through B-33 for 1794-TB2, -TB3, -TB3K and -TB3S B-16, B-17, B-19, B-21, B-23, B-25, B-27, B-29, B-31 and B-33 for 1794-TB3T and -TB3TS			
+V dc	C-34 through C-51 for 1794-TB3, -TB3K and -TB3S; C-34 and C-51 for 1794-TB2 C-34, C-35, C-50 and C-51 for 1794-TB3T and -TB3TS			

1. B-17, B-19, B-21, B-23, B-25, B-27, B-29 and B-31 are tied to Common on 1794-TB2, -TB3, -TB3S; C-39 through C-46 are tied to chassis ground on 1794-TB3T and 1794-TB3TS

Use 1794-TB3T or -TB3TS for thermocouple or millivolt inputs. Use 1794-TB2, -TB3 and -TB3S for millivolt inputs only.

Connect +V to C-34.

Connect +V common to B-16.

Use B-33 and C-51 for daisy chaining to the next terminal base unit.

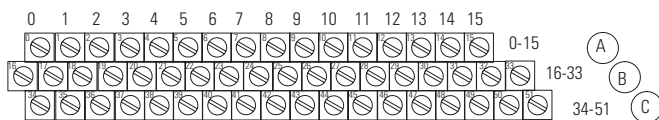
**1794-TG3T and 1794-TB3TS**

Input	CJC Sensor			
	+	Chassis Ground	-	CJC Tail
CJC1	36	37	38	A0 through A7 (any terminal)
CJC2	47	48	49	A8 through A15 (any terminal)

The tail of the cold junction compensator shares a terminal with an input.

**1794-IV16**

1794-TB2, -TB3, -TB3K, -TB3S



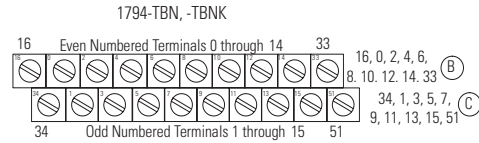
Terminals 35 through 50 are not used on 1794-TB2

1794-TB2, -TB3, -TB3K, -TB3S					
Input Channel	Input Terminal	Common Terminal	Input Channel	Input Terminal	Common Terminal
0	A-0	B-17	8	A-8	B-25
1	A-1	B-18	9	A-9	B-26
2	A-2	B-19	10	A-10	B-27
3	A-3	B-20	11	A-11	B-28
4	A-4	B-21	12	A-12	B-29
5	A-5	B-22	13	A-13	B-30
6	A-6	B-23	14	A-14	B-31
7	A-7	B-24	15	A-15	B-32
Common	B-16 through B-33		+V dc	C-34 through C-51 (C-34 and C-51 for TB2)	

Connect +V to C-34.

Connect +V common to B-16.

Use B-33 and C-51 for daisy chaining to the next terminal base unit.



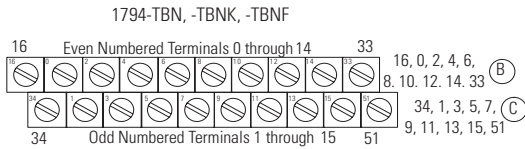
1794-OA16

Channel	Output Terminals			Channel	Output Terminals		
	1794-TB2, -TB3, -TB3K, -TB3S	1794-TBN, -TBNK	120V ac Common <sup>1</sup>		1794-TB2, -TB3, -TB3K, -TB3S	1794-TBN, -TBNK	120V ac Common <sup>1</sup>
0	A-0	B-0	B-17	8	A-8	B-8	B-25
1	A-1	C-1	B-18	9	A-9	C-9	B-26
2	A-2	B-2	B-19	10	A-10	B-10	B-27
3	A-3	C-3	B-20	11	A-11	C-11	B-28
4	A-4	B-4	B-21	12	1-12	B-12	B-29
5	A-5	C-5	B-22	13	A-13	C-13	B-30
6	A-6	B-6	B-23	14	A-14	B-14	B-31
7	A-7	C-7	B-24	15	A-15	C-15	B-32

For TB2, -TB3, -TB3K and -TB3S:  
 A = Output terminals.  
 B = B-17 through B-32 are connected internally to 120V ac common L2. Connect 120V ac common L2 to B-16.  
 C = Power terminals (C-34 and C-51 for TB2; C-34 through C-51 for TB3 and TB3S) are connected internally. Connect 120V ac L1 to terminal C-34.  
 For -TBN and -TBNK: Connect 120V ac common L2 to B-16. Connect 120V ac L1 to C-34.  
 B = Even numbered output terminals 0 through 14; B-16 and B-33 are connected internally.  
 C = Odd numbered output terminals 1 through 15; C-34 and C-51 are connected internally.

1. When using the 1794-TBN and -TBNK, an auxiliary terminal block must be used to provide connection points for each channel's second sensor wire, 120V ac common. Use B-33 and C-51 for daisy chaining to the next terminal base unit.

1794-OA8, 1794-OA8K



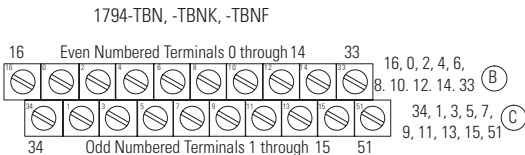
Output Channel	1794-TB2, -TB3, -TB3K, -TB3S		1794-TBN, -TBNK, -TBNF	
	Output Terminal	Common Terminal <sup>1</sup>	Output Terminal	Common Terminal <sup>2</sup>
0	A-0	A-1 /B-17	B-0	C-1
1	A-2	A-3 /B-19	B-2	C-3
2	A-4	A-5 /B-21	B-4	C-5
3	A-6	A-7 /B-23	B-6	C-7
4	A-8	A-9 /B-25	B-8	C-9
5	A-10	A-11 /B-27	B-10	C-11
6	A-12	A-13 /B-29	B-12	C-13
7	A-14	A-15 /B-31	B-14	C-15

A = output terminals  
 B = common terminals - 120V ac Common L2  
 C = Power terminal (C-34 through 51 for TB3, TB3K and TB3S) (C-34 and C-51 for TB2)  
 B = even numbered terminals 0 through 14, ac common L2 terminals 16 and 33  
 C = Power Terminals C-34 and C-51, and odd numbered common terminals 1 through 15

1. A-1, 3, 5, 7, 9, 11, 13 and 15 on 1794-TB3, -TB3K, -TB3S and -TB2 are connected internally to 120V ac common L2.  
 2. C-1, 3, 5, 7, 9, 11, 13 and 15 on 1794-TBN, -TBNK and -TBNF are connected internally to 120V ac common L2.

Connect 120V ac L1 to C-34.  
 Connect 120V ac L2 common to B-16.  
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

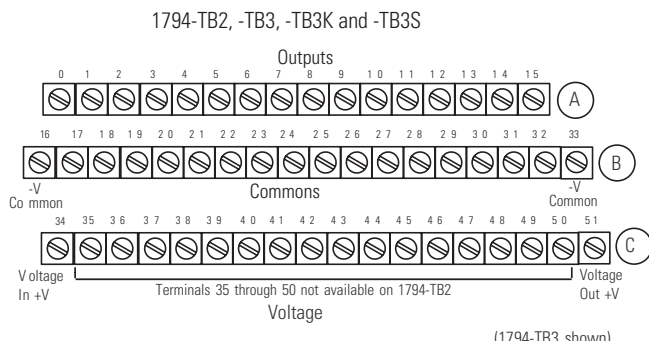
1794-OA8I



Output Channel	1794-TB2, -TB3, -TB3K, -TB3S		1794-TBN, -TBNK, -TBNF	
	Output Terminal	120V ac L1 Terminal	Output Terminal	120V ac L1 Terminal
0	A-0	A-1	B-0	C-1
1	A-2	A-3	B-2	C-3
2	A-4	A-5	B-4	C-5
3	A-6	A-7	B-6	C-7
4	A-8	A-9	B-8	C-9
5	A-10	A-11	B-10	C-11
6	A-12	A-13	B-12	C-13
7	A-14	A-15	B-14	C-15

A = even numbered output terminals 0 through 14  
 odd numbered 120V ac L1 terminals 1 through 15  
 B = even numbered output terminals 0 through 14  
 C = odd numbered 120V ac L1 terminals 1 through 15

**1794-OB16, 1794-OB16D, 1794-OB16P, 1794-OB16PK, 1794-OB8**



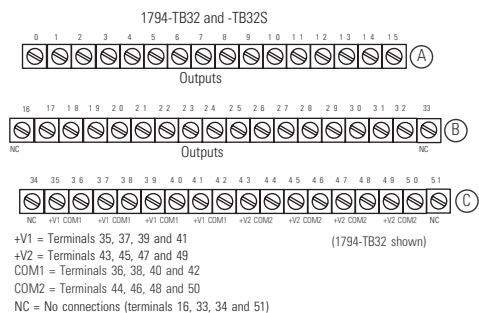
Connect +V to C-34.  
 Connect +V common to B-16.  
 Use B-33 and C-51 for daisy chaining to next terminal base unit.

(1794-TB3 shown)

Output Channel <sup>1</sup>	Output Terminal	Common Terminal
0	A-0	B-17
1	A-1	B-18
2	A-2	B-19
3	A-3	B-20
4	A-4	B-21
5	A-5	B-22
6	A-6	B-23
7	A-7	B-24
8	A-8	B-25
9	A-9	B-26
10	A-10	B-27
11	A-11	B-28
12	A-12	B-29
13	A-13	B-30
14	A-14	B-31
15	A-15	B-32
+V dc	C-34 and C-51 for 1794-TB2 C-34 through B-51 for the 1794-TB3, -TB3K and -TB3S	
Common	B-16 through B-33	

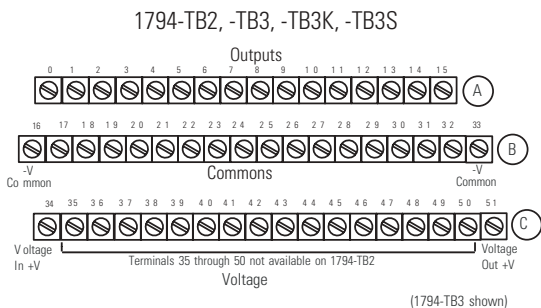
1. 1794-OB8 uses only outputs 0 through 7.

**1794-OB32P**



Output Channel	Output Terminal	Common	Output Channel	Output Terminal	Common
0	A-0	Connect common to terminals 36, 38, 40 and 42	16	B-17	Connect common to terminals 44, 46, 48 and 50
1	A-1				
2	A-2				
3	A-3				
4	A-4				
5	A-5				
6	A-6				
7	A-7				
8	A-8				
9	A-9				
10	A-10				
11	A-11				
12	A-12				
13	A-13				
14	A-14				
15	A-15				
For Outputs 0 through 15, use +V1 and COM1			For Outputs 16 through 31, use +V2 and COM2		
+V1 dc power	Power terminals 35, 37, 39 and 41		+V2 dc power	Power terminals 43, 45, 47 and 49	
Com1 dc Return	Common terminals 36, 38, 40 and 42		Com2 dc Return	Common terminals 44, 46, 48 and 50	

1794-OB8EP, 1794-OB8EPK

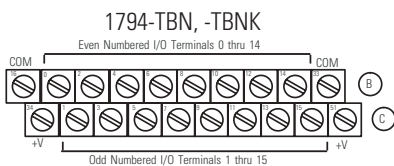


Connect +V to C-34.  
Connect +V common to B-16.  
Use B-33 and C-51 for daisy chaining to next terminal base unit.

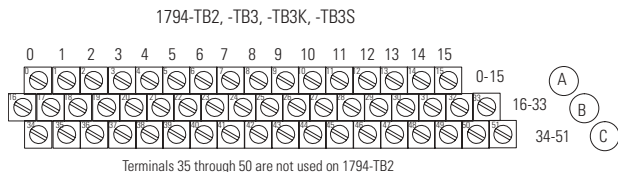
	1794-TB2, -TB3, -TB3K, -TB3S			1794-TBN, -TBNK	
Output Channel	Output Terminal	Common Terminal <sup>1</sup>	Output Terminal	Common Terminal <sup>2</sup>	
0	A-0	A-1/B-17	B-0	C-1	
1	A-2	A-3/B-18	B-2	C-3	
2	A-4	A-5/B-19	B-4	C-5	
3	A-6	A-7/B-20	B-6	C-7	
4	A-8	A-9/B-21	B-8	C-9	
5	A-10	A-11/B-22	B-10	C-11	
6	A-12	A-13/B-23	B-12	C-13	
7	A-14	A-15/B-24	B-14	C-15	
+V dc	C-34 through C-51 for 1794-TB3, -TB3K and -TB3S C-34 and C-51 for 1794-TB2, -TBN and -TBNK				
Common	B-16 through B-33 for 1794-TB2, -TB3, -TB3K, -TB3S B-16 and B33 for 1794-TBN and -TBNK				

1. For the 1794-TB2, -TB3, -TB3K, -TB3S terminal bases, the A-1, A-3, A-5, A-7, A-9, A-11, A-13 and A-15 are connected internally to 24V dc common.

2. For the 1794-TBN and -TBNK terminal bases, the C-1, C-3, C-5, C-7, C-9, C-11, C-13 and C-15 are connected internally to 24V dc common.



1794-OC16

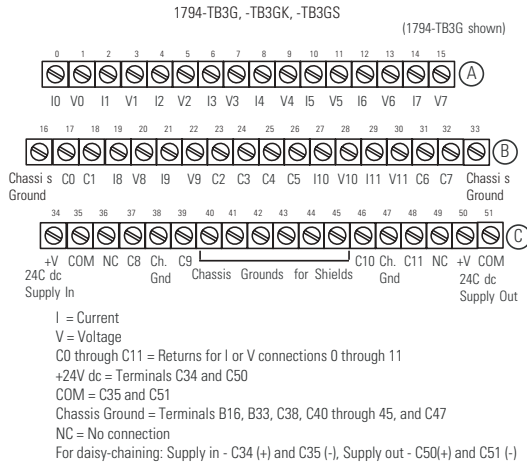


Connect +V to C-34.  
Connect +V common to B-16.  
Use B-33 and C-51 for daisy chaining to next terminal base unit.

1794-TB2, -TB3, -TB3K, -TB3S					
Output Channel	Output Terminal	Common Terminal	Output Channel	Output Terminal	Common Terminal
0	A-0	B-17	8	A-8	B-25
1	A-1	B-18	9	A-9	B-26
2	A-2	B-19	10	A-10	B-27
3	A-3	B-20	11	A-11	B-28
4	A-4	B-21	12	A-12	B-29
5	A-5	B-22	13	A-13	B-30
6	A-6	B-23	14	A-14	B-31
7	A-7	B-24	15	A-15	B-32
Common	B-16 through B-33		+V dc	C-34 through C-51 (C-34 and C-51 for TB2)	



1794-0E12



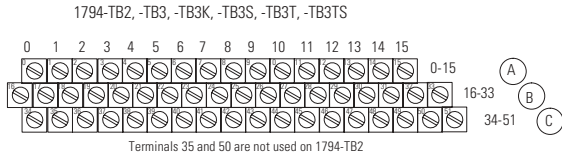
**ATTENTION** To reduce susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 33 ft (10m) for dc power cabling.

Do not daisy chain power or ground from this terminal base unit to any ac or dc digital module terminal base units.

Do not exceed a length of 33 ft (10m) for signal cabling.

Channel	Signal Type	Label Marking	1794-TB3G, -TB3GK, -TB3GS	
			Output	Common Terminal
Output 0	Current	I0	A-0	B-17
	Voltage	V0	A-1	
Output 1	Current	I1	A-2	B-18
	Voltage	V1	A-3	
Output 2	Current	I2	A-4	B-23
	Voltage	V2	A-5	
Output 3	Current	I3	A-6	B-24
	Voltage	V3	A-7	
Output 4	Current	I4	A-8	B-25
	Voltage	V4	A-9	
Output 5	Current	I5	A-10	B-26
	Voltage	V5	A-11	
Output 6	Current	I6	A-12	B-31
	Voltage	V6	A-13	
Output 7	Current	I7	A-14	B-32
	Voltage	V7	A-15	
Output 8	Current	I8	B-19	C-37
	Voltage	V8	B-20	
Output 9	Current	I9	B-21	C-39
	Voltage	V9	B-22	
Output 10	Current	I10	B-27	C-46
	Voltage	V10	B-28	
Output 11	Current	I11	B-29	C-48
	Voltage	V11	B-30	
-V dc Common	Terminals 35 and 51 are internally connected in the terminal base unit.			
+V dc Power	Terminals 34 and 50 are internally connected in the terminal base unit.			
Chassis Ground (Shield)	Terminals 16, 33, 38, 40 through 45, and 47 are internally connected to chassis ground.			

1794-0E4, 1794-0E4K

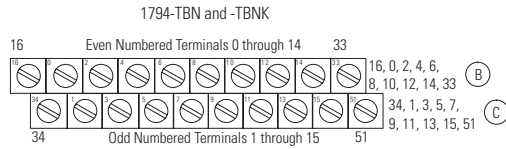


Output Channel	Signal Type	TB2, TB3, TB3K, TB3S, TB3T, TB3TS		Output Channel	Signal Type	TB2, TB3, TB3K, TB3S, TB3T, TB3TS	
		Output Terminal	Shield			Input Terminal	Shield
0	Current Signal	A-0	C-39	2	Current Signal	A-8	C-43
	Current Common	A-1 <sup>1</sup>	C-39		Current Common	A-9 <sup>1</sup>	C-43
	Voltage Signal	A-2	C-40		Voltage Signal	A-10	C-44
	Voltage Common	A-3 <sup>1</sup>	C-40		Voltage Common	A-11 <sup>1</sup>	C-44
1	Current Signal	A-4	C-41	3	Current Signal	A-12	C-45
	Current Common	A-5 <sup>1</sup>	C-41		Current Common	A-13 <sup>1</sup>	C-45
	Voltage Signal	A-6	C-42		Voltage Signal	A-14	C-46
	Voltage Common	A-7 <sup>1</sup>	C-42		Voltage Common	A-15 <sup>1</sup>	C-46

Common for TB2, TB3, TB3K, TB3S: B-16 through B-33  
Common for TB3T and TB3TS: B-16, 17, 19, 21, 23, 25, 27, 29, 31, and 33

+ V dc Power for TB2: C-34 and C-51  
+ Vdc Power for TB3, TB3K and TB3S: C-34 through C-51  
+ V dc Power for TB3T and TB3TS: C-34, 35, 50, and 51

1 A-1, 3, 5, 7, 9, 11, 13, and 15 are internally connected in the module to +V common.



Output Channel	Signal Type	Output Terminal	Output Channel	Signal Type	Output Terminal
0	Current Signal	B-0	2	Current Signal	B-8
	Current Common	C-1		Current Common	C-9
	Voltage Signal	B-2		Voltage Signal	B-10
	Voltage Common	C-3		Voltage Common	C-11
1	Current Signal	B-4	3	Current Signal	B-12
	Current Common	C-5		Current Common	C-13
	Voltage Signal	B-6		Voltage Signal	B-14
	Voltage Common	C-7		Voltage Common	C-15
Common	B-16 and B-33		+ V dc	C34 and C-51	

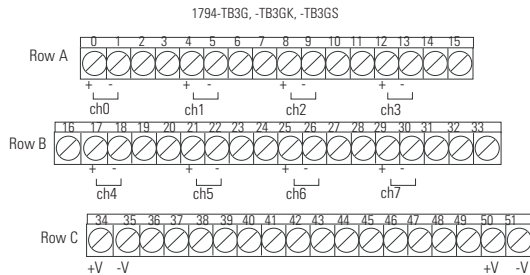
**ATTENTION** Only connect either a voltage signal or a current signal per channel, not both.



To reduce susceptibility to noise, power analog and digital modules from separate power supplies. Do not exceed a length of 3M (9.8 ft) for DC power cabling.

Connect +V to C-34.  
Connect +V common to B-16.  
Use B-33 and C-51 for daisy chaining to the next terminal base unit.  
Connect any signal wiring shield to functional ground as near as possible to the module when using the 1794-TB2, -TB3, -TB3K -TB3S, -TBN or -TBNK. With the 1794-TB3T and -TB3TS, use terminals C-39 through C-46.

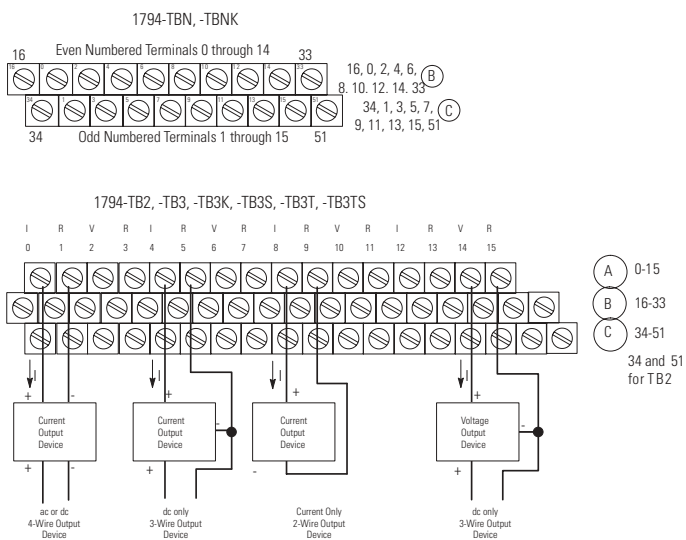
1794-0E8H



Output	Output +	Output -	Output	Output +	Output -
Output 0	A-0	A-1	Output 4	B-17	B-18
Output 1	A-4	A-5	Output 5	B-21	B-22
Output 2	A-8	A-9	Output 6	B-25	B-26
Output 3	A-12	A-13	Output 7	B-29	B-30
+V	Terminals 34 and 50				
-V	Terminals 35 and 51				

+24V dc = Terminals C-34 and C-50  
-V = C-35 and C-51  
NC = No connection  
For daisy-chaining: Supply in - C-34 (+) and C-35 (-)  
Supply out - C-50 (+) and C-51 (-)

1794-OF4I



1794-TB2, -TB3, -TB3K, -TB3S, -TB3T, -TB3TS					1794-TBN, -TBNK
Output Channel	Signal Type	Label Markings	Terminal	Shield (TB3T/TB3TS)	Terminal
0	Current Output	I0	A-0	C-39	B-0
	Current Return	I0 Ret	A-1		C-1
	Voltage Output	V0	A-2	C-40	B-2
	Voltage Return	V0 Ret	A-3		C-3
1	Current Output	I1	A-4	C-41	B-4
	Current Return	I1 Ret	A-5		C-5
	Voltage Output	V1	A-6	C-42	B-6
	Voltage Return	V1 Ret	A-7		C-7
2	Current Output	I2	A-8	C-43	B-8
	Current Return	I2 Ret	A-9		C-9
	Voltage Output	V2	A-10	C-44	B-10
	Voltage Return	V2 Ret	A-11		C-11
3	Current Output	I3	A-12	C-45	B-12
	Current Return	I3 Ret	A-13		C-13
	Voltage Output	V3	A-14	C-46	B-14
	Voltage Return	V3 Ret	A-15		C-15
Common	TB2, TB3, TB3K, TB3S: Terminals 16 through 33 are internally connected in the terminal base unit TB3T, TB3TS: Terminals 16, 17, 19, 21, 23, 25, 27, 29, 31, and 33 are internally connected in the terminal base unit TBN, TBNK: Terminals 16 and 33 are internally connected in the terminal base unit				
+V dc	TB2, TBN, TBNK: Terminals 34 and 51 are internally connected in the terminal base unit TB3, TB3K, TB3S: Terminals 34 through 51 are internally connected in the terminal base unit TB3T, TB3TS: Terminals 34, 35, 50, and 51 are internally connected in the terminal base unit				
Chassis Gnd	TB3T, TB3TS: Terminals 39 through 46 are internally connected to chassis gnd				

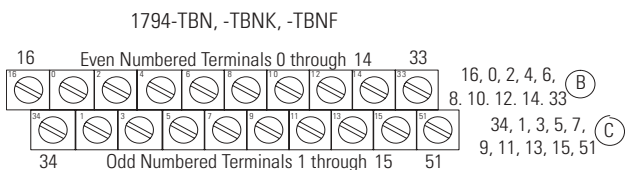
**ATTENTION** Only connect either a voltage signal or a current signal per channel, not both.



To reduce susceptibility to noise, power analog and digital modules from separate power supplies. Do not exceed a length of 3M (9.8 ft) for DC power cabling.

Connect +V to C-34.  
Connect +V common to B-16.  
Use B-33 and C-51 for daisy chaining to the next terminal base unit.  
Connect any signal wiring shield to functional ground as near as possible to the module when using the 1794-TB2, -TB3, -TB3K, -TB3S, -TBN or -TBNK. With the 1794-TB3T and -TB3TS, use terminals C-39 through C-46.

1794-OM8

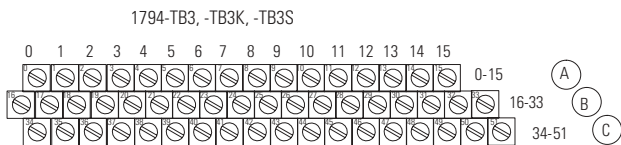


Connect 220V ac L2 common to B-16.  
Connect 220V ac L1 to C-34.  
Use B-33 and C-51 for daisy chaining to the next terminal base unit.

Output Channel	1794-TBN, -TBNK, -TBNF	
	Output Terminal	Common Terminal <sup>1</sup>
0	B-0	C-1
1	B-2	C-3
2	B-4	C-5
3	B-6	C-7
4	B-8	C-9
5	B-10	C-11
6	B-12	C-13
7	B-14	C-15

B = even numbered output terminals 0 through 14, ac common terminals 16 and 33  
C = power terminals C-34 and C-51, and odd numbered output common terminals 1 through 15  
1. C-1, 3, 5, 7, 9, 11, 13, and 15 are internally connected in the module to 220V ac common L2.

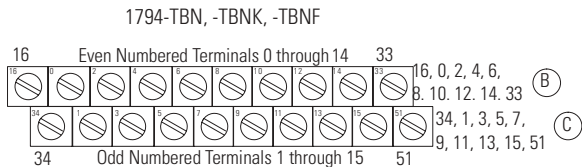
**1794-OV16, 1794-OV16P**



Connect +V to C-34.  
 Connect +V common to B-16.  
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

1794-TB3, -TB3K, -TB3S					
Output Channel	Output Terminal	Power Terminal	Output Channel	Output Terminal	Power Terminal
0	A-0	C-35	8	A-8	C-43
1	A-1	C-36	9	A-9	C-44
2	A-2	C-37	10	A-10	C-45
3	A-3	C-38	11	A-11	C-46
4	A-4	C-39	12	A-12	C-47
5	A-5	C-40	13	A-13	C-48
6	A-6	C-41	14	A-14	C-49
7	A-7	C-42	15	A-15	C-50
Common	B-16 through B-33		+V dc	C-34 through C-51	

**1794-OW8, 1794-OW8K**



Output Channel	1794-TB2, -TB3, -TB3K, -TB3S Output Terminal	1794-TBN, -TBNK, -TBNF Output Terminal
0	A-0	B-0
	A-1	C-1
1	A-2	B-2
	A-3	C-3
2	A-4	B-4
	A-5	C-5
3	A-6	B-6
	A-7	C-7
4	A-8	B-8
	A-9	C-9
5	A-10	B-10
	A-11	C-11
6	A-12	B-12
	A-13	C-13
7	A-14	B-14
	A-15	C-15
	A = output terminals B = dc common terminals C = power terminals (C-34 through C-51 for 1794-TB3, -TB3K -TB3S; C-34 and C-51 for 1794-TB2)	B = even numbered output terminals 0-14, 24V dc common terminals 8-16 and B-33 C = odd numbered output terminals 1-15, 24V dc power terminals C-34 and C-51

**ATTENTION**

Do not attempt to increase load current or wattage capability beyond the maximum rating by connecting 2 or more outputs in parallel. The slightest variation in relay switching time may cause one relay to momentarily switch the total load current.

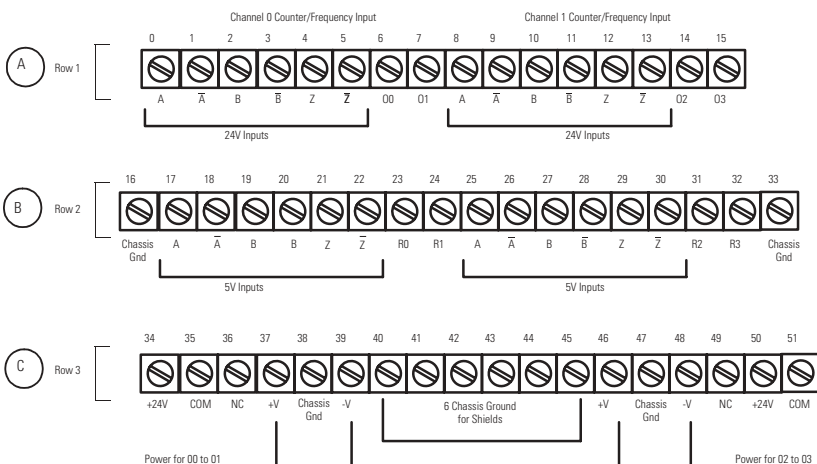
Apply only +24V dc power to the power terminals on the terminal base unit. Make certain that all relay wiring is properly connected before applying any power to the module.

Total current draw through the terminal base unit is limited to 10A. Separate power connections to the terminal base unit may be necessary.

Connect +24V dc to C-34.  
 Connect +24V dc common to B-16.  
 Use B-33 and C-51 for daisy chaining to the next terminal base unit.

### 1794-VHSC

Connections for 1794-TB3G, -TB3GK and -TB3GS (TB3G shown)



Where: A,  $\bar{A}$  = incremental encoder input A (+5 or +24V dc)  
 B,  $\bar{B}$  = incremental encoder input B (+5 or +24V dc)  
 Z,  $\bar{Z}$  = incremental encoder input Z (+5 or +24V dc)  
 O = sourcing outputs  
 R = returns for sourcing outputs  
 +V = +5 or +24V dc isolated power externally supplied for outputs (1A max)  
 -V = negative isolated power connection (1A max)  
 +24V dc = 24V dc terminal base power for module  
 COM = return for +24V dc terminal base power  
 Chassis Gnd = chassis ground for input or output cable shields  
 NC = No connect

Incremental Encoder Inputs	Channel 0		Channel 1	
	+24V Inputs	+5V Inputs	+24V Inputs	+5V Inputs
Input A	A-0	B-17	A-8	B-25
Input $\bar{A}$	A-1	B-18	A-9	B-26
Input B	A-2	B-19	A-10	B-27
Input $\bar{B}$	A-3	B-20	A-11	B-28
Input Z	A-4	B-21	A-12	B-29
Input $\bar{Z}$	A-5	B-22	A-13	B-30

Outputs	Sourcing Out	Return	Outputs	Sourcing Out	Return
Output 0 (O0)	A-6	B-23	Output 0 (O2)	A-14	B-31
Output 1 (O1)	A-7	B-24	Output 1 (O3)	A-15	B-32
+24V Terminal Base Power		Terminals C-34 and C-50			
24V COM		Terminals C-35 and C-51			
+5V or +24V power (this isolated power is externally supplied for outputs with a 1A max.)		Terminals C-37 and C-46			
-V output power		Terminals C-39 and C-48			
Chassis Ground		Terminals C-16, B-33 and C-38, C-40 through C-45, C-47			

**ATTENTION**



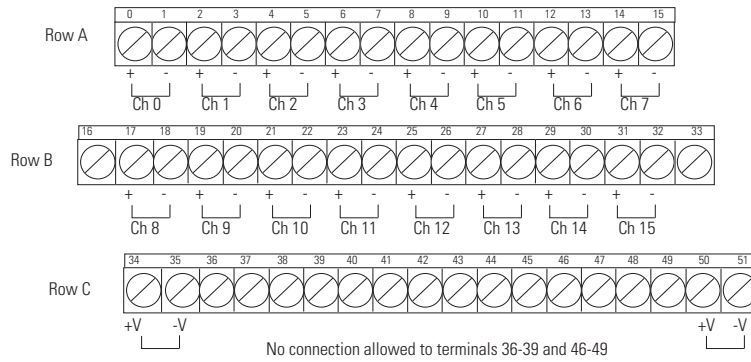
To reduce the susceptibility to noise, power analog modules and digital modules from separate power supplies. Do not exceed a length of 3m (9.8ft) for dc power cabling.

Total current draw through the terminal base unit is limited to 10A. Separate power connections to the terminal base unit may be necessary.

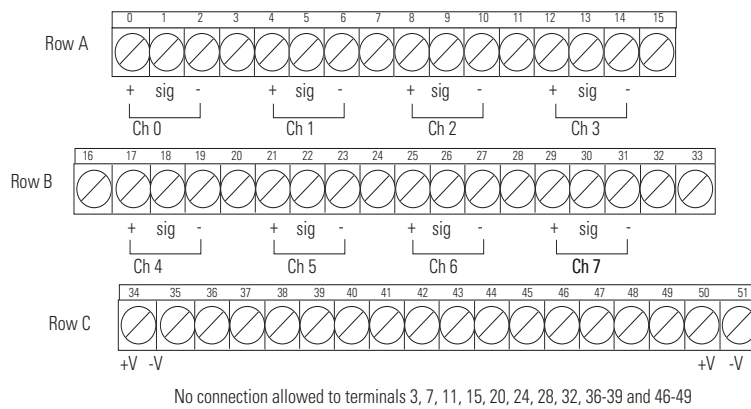
**Notes:**

# 1797 FLEX Ex Modules

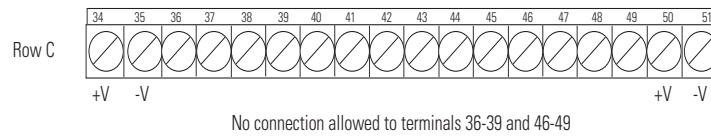
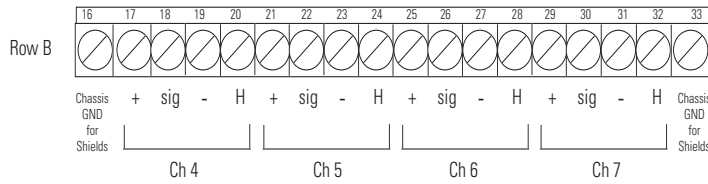
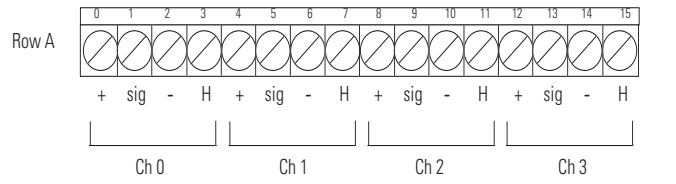
## 1797-IBN16



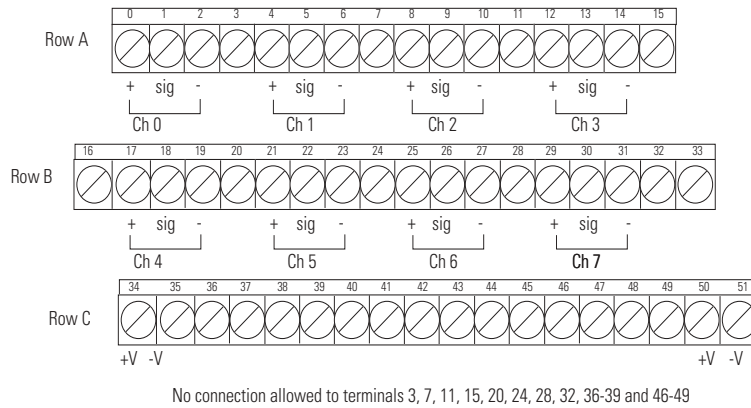
## 1797-IE8



**1797-IE8H**

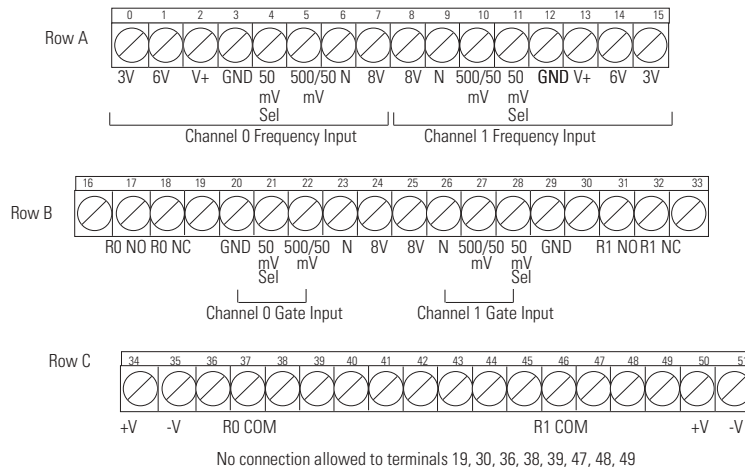


**1797-IE8NF**

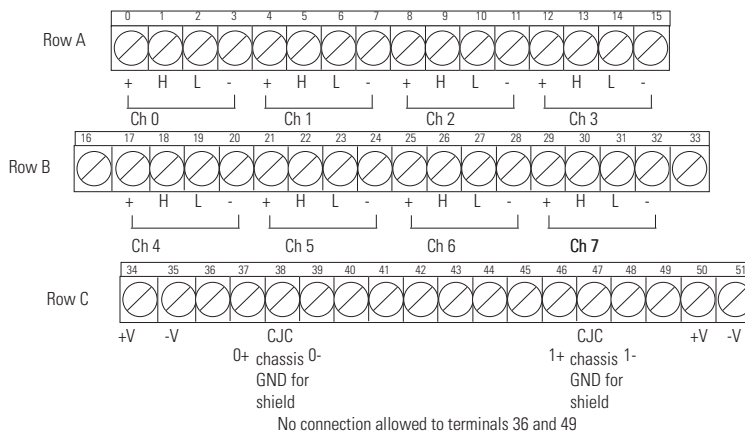




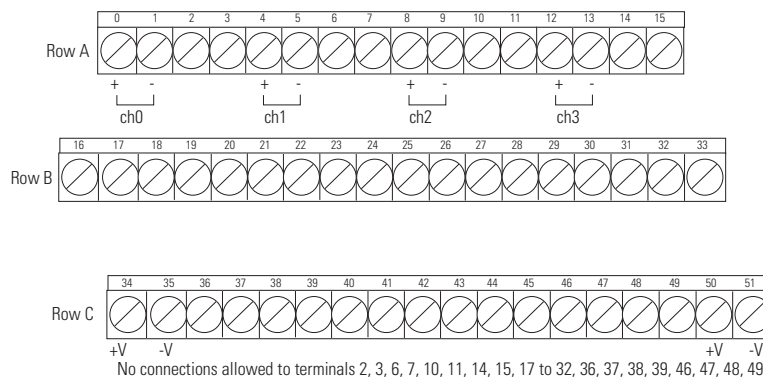
**1797-IJ2**



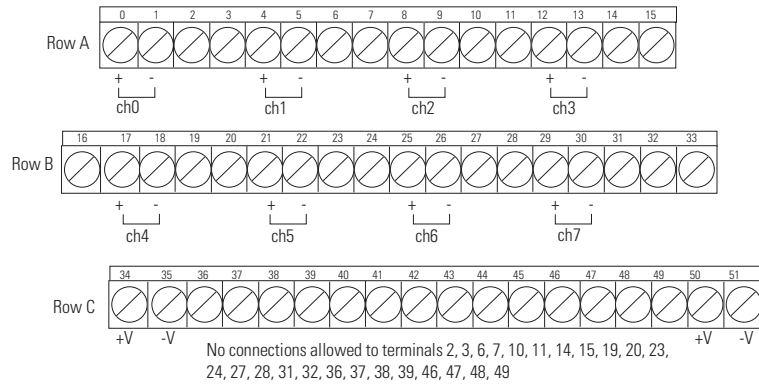
**1797-IRT8**



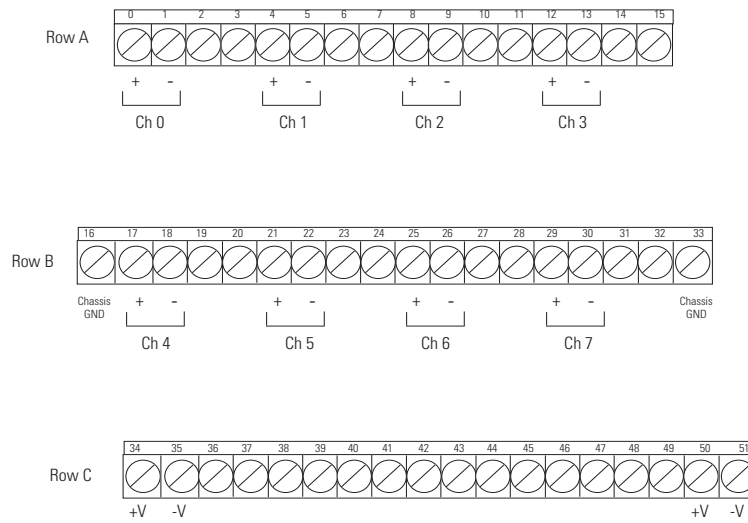
**1797-OB4D**



**1797-OE8**

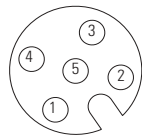


**1797-OE8H**



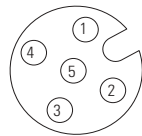
## 1798 FLEX Armor I/O Modules

### 1798-DFTP1

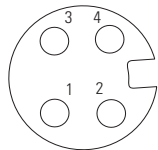


Male M12 Micro Connector (In)  
(View into Socket)

- Pin 1 Drain Wire
- Pin 2 +Voltage
- Pin 3 -Voltage
- Pin 4 Controller Area Network (CAN) High
- Pin 5 Controller Area Network (CAN) Low



Female M12 Micro Connector  
(Daisy Chain Out)

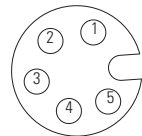


Male Power Connector

The connection to the power connector should be a 4-pin female mini quick disconnect connector.

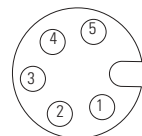
- Pin 1 Output Power +
- Pin 2 Sensor Power + (Red wire)
- Pin 3 Sensor Power -
- Pin 4 Output Power -

### 1798-DFTP2

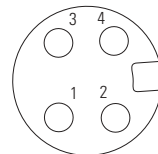


Male M18 Mini Connector (In)  
(View into Socket)

- Pin 1 Drain Wire
- Pin 2 +Voltage
- Pin 3 -Voltage
- Pin 4 Controller Area Network (CAN) High
- Pin 5 Controller Area Network (CAN) Low



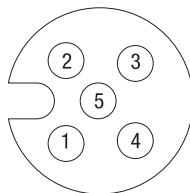
Female M18 Mini Connector  
(Daisy Chain Out)



Male Power Connector

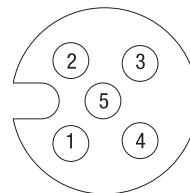
- Pin 1 Output Power +
- Pin 2 Sensor Power +
- Pin 3 Sensor Power -
- Pin 4 Output Power -

### 1798-IB4, -IB4D and -IB8



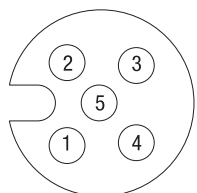
- Female Input Micro- Connector  
(View into Socket)
- Pin 1 Sensor Power
  - Pin 2 Input B (IB8 Modules Only)
  - Pin 3 Sensor Common
  - Pin 4 Input A
  - Pin 5 Not Used

### 1798-IE4



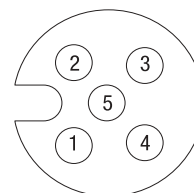
- Female Input Micro- Connector  
(View into Socket)
- Pin 1 Sensor Power
  - Pin 2 Current Input
  - Pin 3 Sensor Common
  - Pin 4 Voltage Input
  - Pin 5 Not Used

### 1798-OB4E and -OB8E



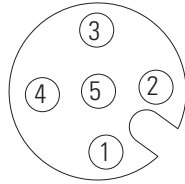
- Female Output Micro Connector  
(View into Socket)
- Pin 1 Not Used
  - Pin 2 Output B (OB8E modules only)
  - Pin 3 Output Common
  - Pin 4 Output A
  - Pin 5 Not Used

### 1798-OE2



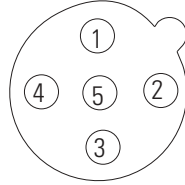
- Female Input Micro- Connector  
(View into Socket)
- Pin 1 Sensor Power
  - Pin 2 Current Output
  - Pin 3 Sensor Common
  - Pin 4 Voltage Output
  - Pin 5 Not Used

**1798-PFTP1**

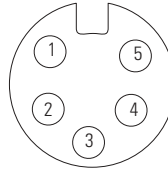


Male M12 Connector  
(PBUS IN)

- Pin 1 +5V BUS
- Pin 2 A-Line
- Pin 3 GNDBUS
- Pin 4 B-Line
- Pin 5 Shield



Female M12 Connector  
(PBUS OUT)



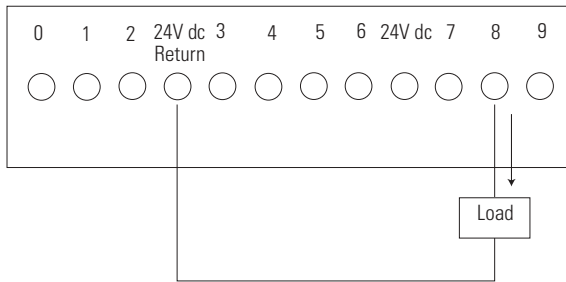
Power Connector  
(Male Connector)

- Pin 1 Output Power -
- Pin 2 Sensor Power -
- Pin 3 Protective Gnd
- Pin 4 Sensor Power +
- Pin 5 Output Power +

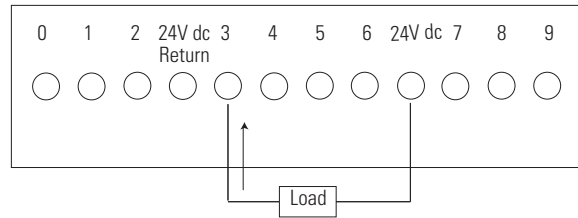
The connection to the power connector should be a 5-pin female mini quick disconnect connector.

# 1799 Embedded I/O Cards

**1799-D10U10B, 1799-D10U10BL, 1799-D10U10BZC, 1799-ZCIOB**  
**Outputs Sourcing**

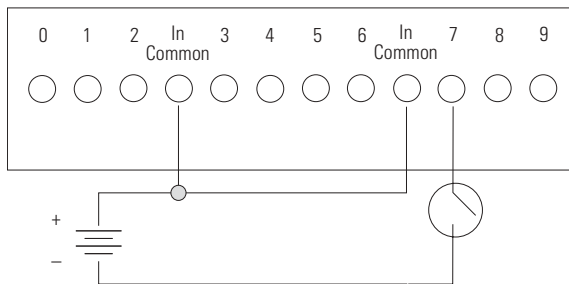


**1799-D10U10V, 1799-D10U10VL, 1799-D10U10VZC, 1799-ZCIOV**  
**Outputs Sinking**

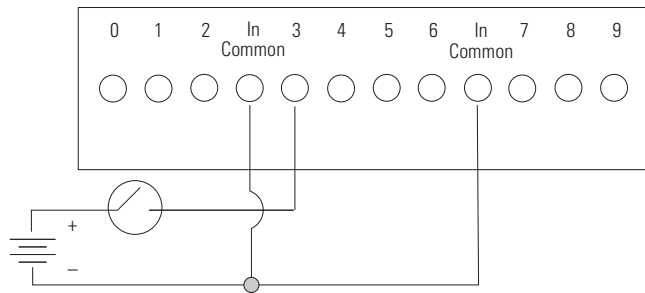


**1799-D10U10B, 1799-D10U10BL, 1799-D10U10BZC, 1799-ZCIOB, 1799-D10U10V, 1799-D10U10VL, 1799-D10U10VZC, 1799-ZCIOV**

**Inputs Sourcing**



**Inputs Sinking**



**Notes:**



# Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using our products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

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://support.rockwellautomation.com>.

## Installation Assistance

If you experience a problem with a hardware module 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 module up and running:

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

## New Product Satisfaction Return

Rockwell tests all of our 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:

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

[www.rockwellautomation.com](http://www.rockwellautomation.com)

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