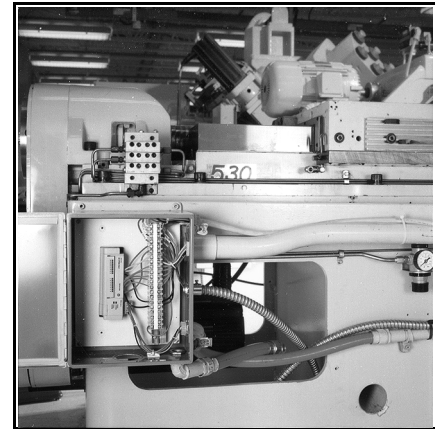




CompactBlock I/O on Remote I/O

**1791R-4B4P, 1791R-8B8P, 1791R-8V8P, 1791R-16B0,
1791R-0B16P**



The 1791R CompactBlock I/O modules contain I/O circuits, removable termination, and a built-in Remote I/O adapter. CompactBlock Remote I/O modules are ideal for applications restricted by space limitations and applications requiring highly distributed I/O blocks close to sensors and actuators. Each Remote I/O node consists of either one base module or one base module and one expansion module. Any expansion module can be coupled with any base module. CompactBlock 1791R consists of only base modules. The expansion modules are part of the CompactBlock 1791D family of products.:

CompactBlock Remote I/O Base Modules and DeviceNet Expansion Modules

- 4 sinking input 4 sourcing output base module (1791R-4B4P)
- 16 sinking input base module (1791R-16B0)
- 16 sourcing input expansion module (1791D-16V0X)
- 8 sinking input/ 8 sourcing output base module (1791R-8B8P)
- 16 sourcing output base module (1791R-0B16P)
- 16 sourcing output expansion module (1791D-0B16PX)
- 8 sourcing input/ 8 sinking output base module (1791R-8V8P)
- 16 sinking input expansion module (1791D-16B0X)
- 16 sinking output expansion module (1791D-0V16PX)

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PLC is a registered trademark of Rockwell Automation.

DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA).

Important User Information

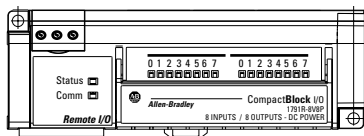
Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Rockwell Automation be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Rockwell Automation does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley™ publication SGI-1.1, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Overview



CompactBlock Remote I/O Module

41673

CompactBlock Remote I/O modules are compatible with PLC®, SLC™ or SoftLogix™ programmable controllers using Remote I/O scanners. All CompactBlock Remote I/O module values are accessible through the data tables of the PLC or SLC programmable controller.

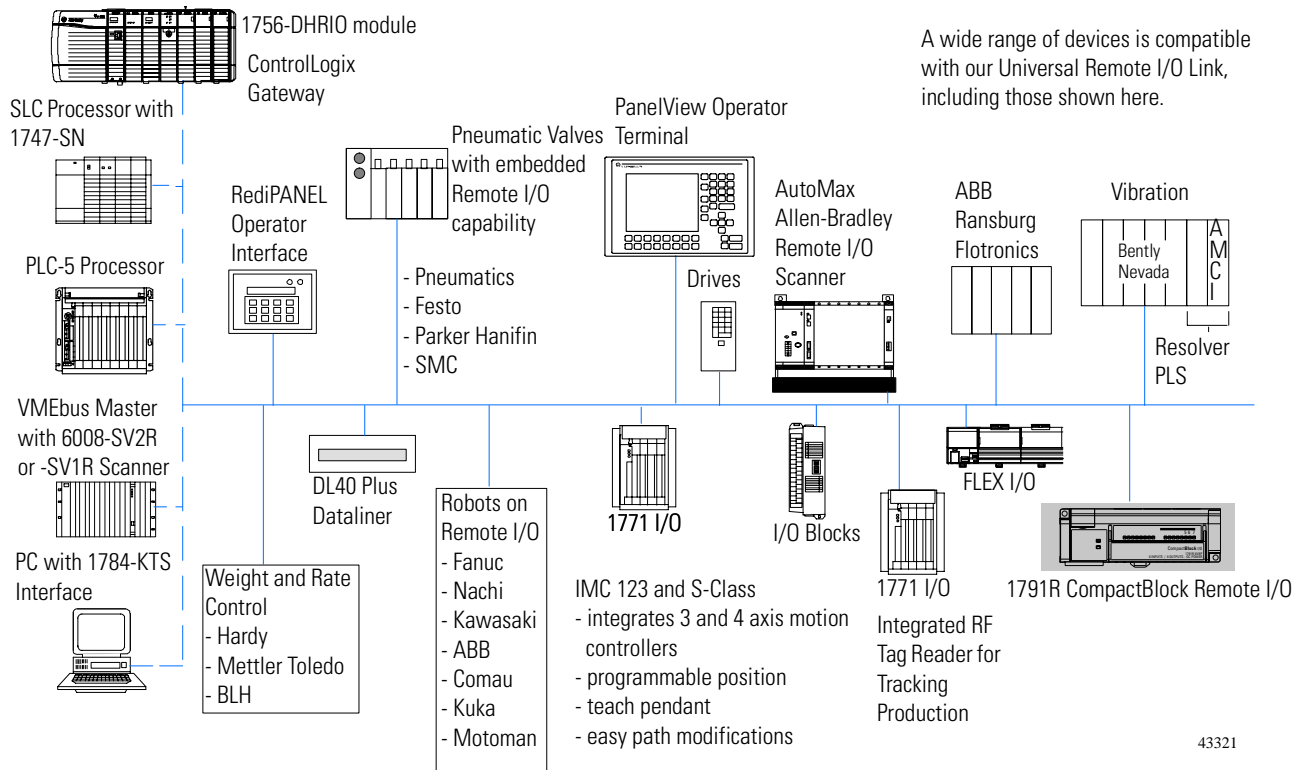
Rack addresses on the modules are set using DIP switches located on the module. The switches are read at module power up only.

Features and Benefits

Feature:	Benefit:
24V dc device power	accommodates broad range of power supplies and multiple voltage levels from the network
NEMA type 3 inputs	compatible with a broad range of sensors
self-contained package	cost-effective distribution
hardware watchdog function	puts outputs in a known state if the microprocessor or crystal fails
I/O block located close to sensors and actuators	lower wiring costs
compact size of I/O block	module requires no adapter or power supply
panel or DIN rail mounted	choice of horizontal or vertical mounting orientation
DIP switches set rack address	reduces commissioning time
Removable terminations	quick replacement of block without re-wiring

Typical Configuration

This graphic shows how your CompactBlock I/O fits into a typical Remote I/O system.



System Compatibility

CompactBlock I/O modules are compatible with PLC, SLC or SoftLogix programmable controllers when used with Remote I/O scanners.

CompactBlock Remote I/O Module Communication

DIP Switch Settings

The 1791R DIP switches are described in the table below

DIP Switch	No.	Description	Starting Quarter		
			SW1-2	SW1-2	Module Group
SW1	1	Starting Quarter	SW1-2	SW1-2	Module Group
	2	Starting Quarter	0	0	0 (1st)
			0	1	2 (2nd)
			1	0	4 (3rd)
			1	1	6 (4th)

Starting Quarter: Position in Rack Address with 1/4 rack size data.

DIP Switch	No.	Description		
SW1	3	Rack Address	See table of Rack Addresses in the CompactBlock Distributed I/O on Remote I/O installation instructions, publication no., 1791R-IN001.	
	4	Rack Address		
	5	Rack Address		
	6	Rack Address		
	7	Rack Address		
	8	Rack Address		
SW2	1	Comm Rate	00=57.6K	01=115.2K
	2	Comm Rate	10=230.4K	11=230.4K
	3		N/A	
	4	Hold Last State	Hold Last State	Output Reset
	5	Processor Restart/Lockout	Lockout	Restart
	6	Last I/O	Last Rack	Not Last Rack
	7	Filter Speed Setting	00=2ms	10=4ms
	8	Filter Speed Setting	01=8ms	11=16ms

Rack Address (6 bit): Position in scanner data mapping.

Baud Rates for Your Remote I/O Connection

The baud rate is set before you power up the module using the DIP switches. The baud rate specifications are listed below.

Baud Rate	Cable Length
57.6KBPS	3048m
115.2KBPS	1524m
230.4KBPS	762m

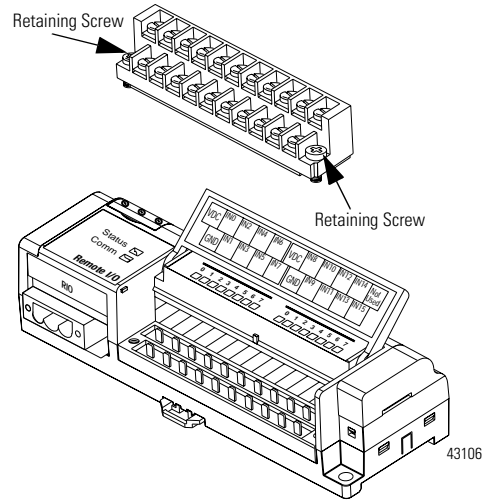
I/O Image Word/Bit Definitions

The smallest portion of a scanner's I/O image that can be allocated to a single RIO device is two logical groups or 1/4 logical rack. A device's starting group must begin at even group numbers (0, 2, 4, or 6). See your scanner documentation for further details.

All combinations of 1791R base and expansion modules will fit in the space allocated by 1/4 logical rack.

Removable Terminal Block

The CompactBlock Remote I/O modules come equipped with a removable terminal block (RTB) which allows for easy module replacement without rewiring.



Indicators

The CompactBlock Remote I/O module has the following indicators:

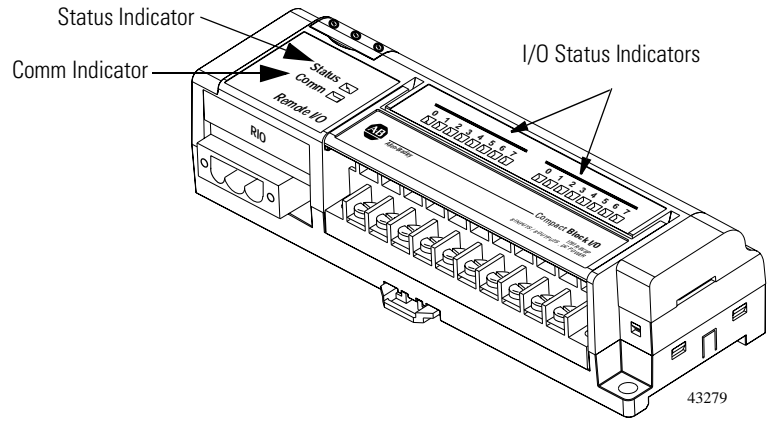
- Status indicator - base only
- Comm indicator - base only
- I/O status indicators - base and expansion

Status Indicator	
Indication:	Status:
Off	No power
Red	Hardware or software error, power is low
Green	Normal operation
Flashing Red	Comm failure 1*
Flashing Red/Orange	Expansion error

*1 Comm fail = communication cable disconnected, 100ms between valid frames, no more than 255 valid frames between valid frames addressed to module, 20ms idle time exceeded.
 **2 COMM and STATUS will alternately flash when processor restart lockout is selected, a fault has occurred and the processor is communicating with the module.

Comm Status Indicator	
Indication:	Status:
Off	Communication not established
Green	Communication established
Flashing Green	Processor in Program mode

I/O Status Indicators			
Function:	LED Color:	Module Illumination:	Condition:
Outputs	Each output: Yellow	None Yellow	Output not energized Output energized
Inputs	Each Input: Yellow	None Yellow	No valid input Valid input

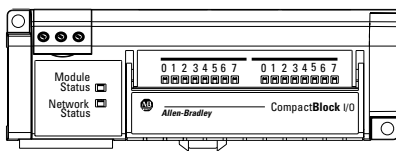


Power Supply Requirements

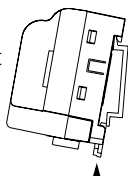
Two sets of VDC+ and GND power pins are located on each terminal (one for each bank of 8 points) except on the 1791R-4B4P module. Input and Output wiring use up to 14AWG (2mm²) stranded (Cu) with 3/64 inch insulation.

Mounting

Panel mount - front view



DIN rail mount - side view



Use a standard screwdriver to pull down the locking tab, then push the module onto the DIN rail.

Most CompactBlock Remote I/O base and expansion modules can be mounted directly to a panel or on a DIN rail.

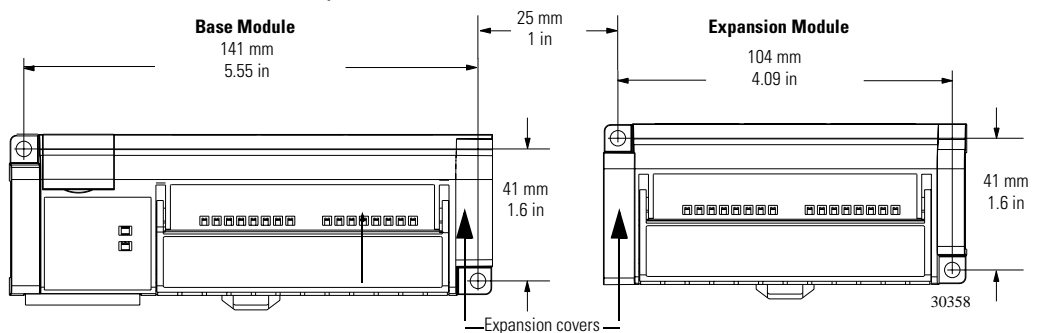
IMPORTANT

Currently, these expansion blocks must be DIN rail mounted to meet our specifications:

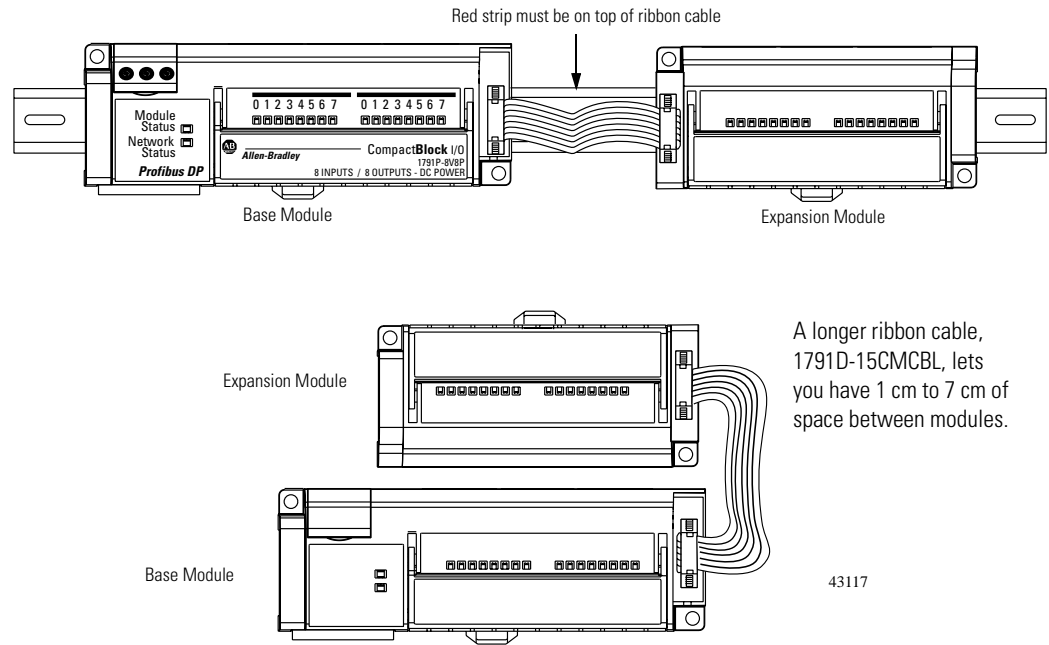
- 1791D-16B0X
- 1791D-16V0X
- 1791D-0B16PX
- 1791D-0V16PX

These expansion blocks cannot be panel mounted.

The following graphic shows the base and expansion modules mounting dimensions. Modules can be mounted vertically or horizontally.

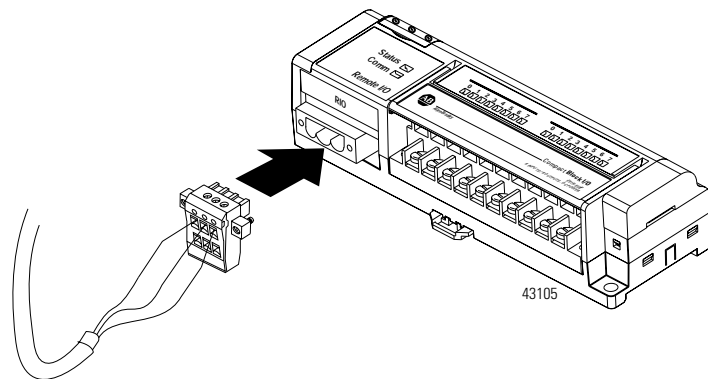


Base and expansion modules can be mounted side-by-side. The modules can also be mounted one on top of the other by using the optional longer cable, 1791D-15CMCBL. The following graphic shows a base module connected to an expansion module.



Remote I/O Terminal Connector

A Remote I/O female 3-pin connector is used when making connection to the terminal connector. Refer to the illustration and table below.



Pin Number:	Wire Color:	Description:
1	blue	Line 1
2	shield	Shield
3	clear	Line 2

Base Module to Expansion Interface

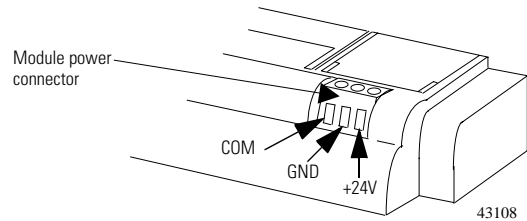
The base module is linked to the expansion module with an 8-bit parallel bus, control lines, Vcc and ground connections, a reset/initialization line, and an expansion presence line. The 8-bit bus is multiplexed so that 16 bits of data (1 for each I/O point) can be transmitted/received with two transfers. The reset/initialization line is used during initialization of the module.

The presence line is used for the detection of an expansion module at power up and for a period of each data transfer. Module ID is read over this bus at power up. 1791R modules supply expansion power via expansion bus as follows:

- Expansion power voltage - 5Vdc
- Expansion power current - 100mA

Power the Module

Power requirements for the CompactBlock Remote I/O module are illustrated below.



Pin Number	Name
1	Com (24V dc return)
2	Gnd (Field ground)
3	+24V dc

Specific Module Information

The remainder of this publication contains specification information for each CompactBlock Remote I/O module. Refer to the table below for information about a specific module.

For information about:	See page:
Remote I/O Base and Expansion Modules General Specifications	9
16 sinking input base module (1791R-16B0) and Expansion Modules	10
4 sinking input/ 4 sourcing output base module (1791R-4B4P) and Expansion Modules	11
8 sinking input / 8 sourcing output base module (1791R-8B8P) and Expansion Modules	12
8 sourcing input/ 8 sinking output base module (1791R-8V8P) and Expansion Modules	13
16 sourcing output base module (1791R-0B16P) and Expansion Modules	14
16 sinking input expansion module (1791D-16B0X)	15
16 sourcing input expansion module (1791D-16V0X)	16
16 sourcing output expansion module (1791D-0B16PX)	17
16 sourcing output expansion module (1791D-0V16PX)	18

Related Publications

Refer to the following publications for more information about the CompactBlock Remote I/O modules.

Title:	Publication Number:
1791D CompactBlock I/O Product Profile	1791D-PP002
CompactBlock Distributed I/O on Remote I/O Installation Instructions	1791R-IN001

General Specifications

The following specifications apply for all CompactBlock Remote I/O modules and expansion modules.

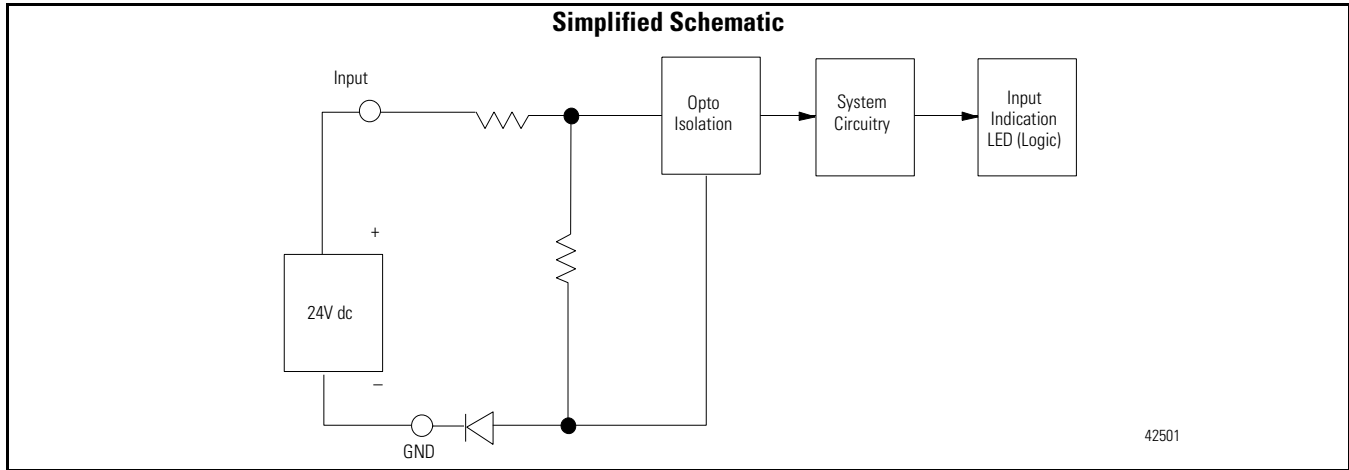
General Specifications	
Isolation Auxiliary I/O power to RIO I/O group-to-group I/O group-to-RIO	Type tested to 500V ac for 60 seconds Type tested to 500V ac for 60 seconds Type tested to 500V ac for 60 seconds
Isolation Auxiliary I/O power to RIO I/O group-to-group I/O group-to-RIO	Type tested to 500V ac for 60 seconds Type tested to 500V ac for 60 seconds Type tested to 500V ac for 60 seconds
RIO Power: Voltage Current	18 - 26.4V dc 250mA maximum (with expansion)
Expansion Power: Voltage Current	5V dc 100mA
Auxiliary Power Inputs: Voltage Current	10-30V dc 88mA each group of 8
Auxiliary Power Outputs: Voltage Current	10-30V dc 4A each group of 8
Base Module Dimensions	150mm X 50mm X 38mm 5.91in X 1.97in X 1.5in
Expansion Module Dimensions	115mm X 50mm X 38mm 4.4in X 1.97in X 1.5in
Field Wiring Tightening Torque	5-7lb-in. (0.5-0.6 Nm)
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0 to 60°C (32 to 140°F)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): -40 to 85°C (-40 to 185°F)
Relative Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5-95% non-condensing
Shock	IEC60068-2-27 (Test Ea, Unpackaged Shock): Operating 30g Non-operating 50g
Vibration	IEC60068-2-6 (Test Fc, Operating): 5g @ 10-500Hz
Conductors Wire Size Category	14 gauge (2mm ²) stranded maximum 3/64 inch insulation maximum 2 ^{1, 2}
ESD Immunity	IEC 61000-4-2: 6kV contact discharge 8kV air discharge
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 80MHz to 1000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900MHz
EFT/B Immunity	IEC 61000-4-4: ±2kV at 5kHz on signal ports ±2kV at 5kHz on communications ports
Surge Transient Immunity	IEC 61000-4-5: ±1kV line-line(DM) and ±2kV line-earth(CM) on signal ports ±2kV line-earth(CM) on shielded ports

General Specifications

Conducted RF Immunity	IEC 61000-4-6: 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Emissions	CSPR 11: Group 1, Class A
Certifications: (when product is marked)	c-UL-us UL Listed Industrial Control Equipment, certified for US and Canada c-UL-us UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada CE ³ European Union 89/336/EEC EMC Directive, compliant with: EN 50081-2; Industrial Emissions EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements 61000-6-2; Industrial Immunity C-Tick ³ Australian Radiocommunications Act, compliant with: AS/NZS 2064; Industrial Emissions
Enclosure	Meets IP20

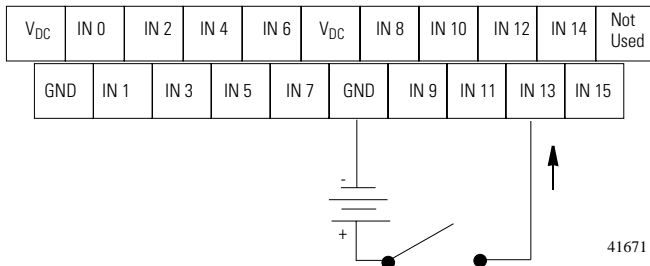
1. You use this conductor category information for planning conductor routing as described in the system level installation manual.
2. See publication 1770-4.1, "Programmable Controller Wiring and Grounding Guidelines."
3. See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

16 Sinking Input Base Module 1791R-16B0 and Expansion Modules



Use the DIP switches to set the baud rate before you power up the module.

Input Wiring Diagram - 1791R-16B0 and 1791D-16B0X Modules



1791R-16B0 I/O images are below.

1791R-16B0																		
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input Image	I 15	I 14	I 13	I 12	I 11	I 10	I 9	I 8	I 7	I 6	I 5	I 4	I 3	I 2	I 1	I 0		
Input Image	Reserved																	
Output Image	Reserved																	
Output Image	Reserved																	

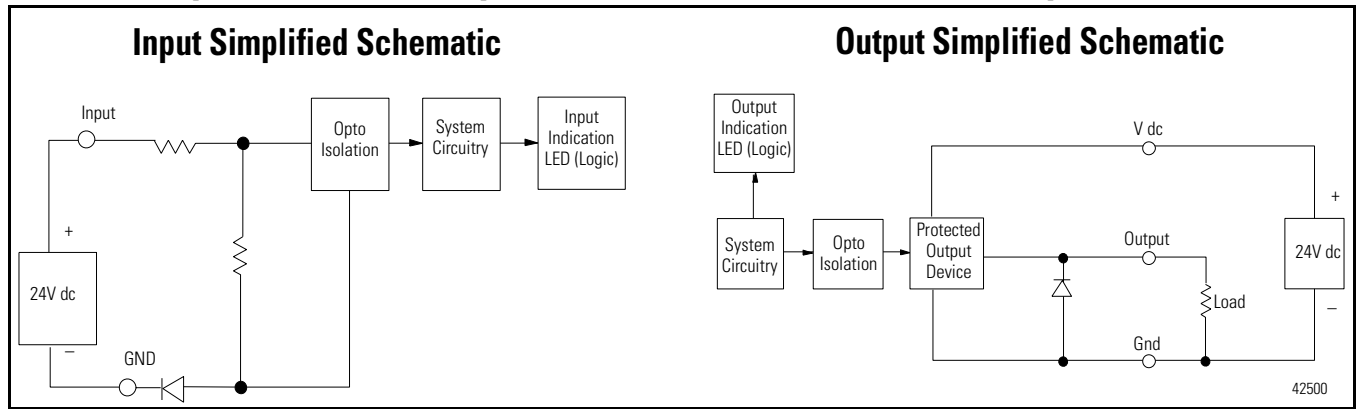
1791R-16B0 with 1791D-16B0X																		
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input Image	I 15	I 14	I 13	I 12	I 11	I 10	I 9	I 8	I 7	I 6	I 5	I 4	I 3	I 2	I 1	I 0		
Input Image	Ex 15	Ex 14	Ex 13	Ex 12	Ex 11	Ex 10	Ex 9	Ex 8	Ex 7	Ex 6	Ex 5	Ex 4	Ex 3	Ex 2	Ex 1	Ex 0		
Output Image	Reserved																	
Output Image	Reserved																	

1791R-16B0 with 1791D-0B16PX																		
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input Image	I 15	I 14	I 13	I 12	I 11	I 10	I 9	I 8	I 7	I 6	I 5	I 4	I 3	I 2	I 1	I 0		
Input Image	Reserved																	
Output Image	Ex 15	Ex 14	Ex 13	Ex 12	Ex 11	Ex 10	Ex 9	Ex 8	Ex 7	Ex 6	Ex 5	Ex 4	Ex 3	Ex 2	Ex 1	Ex 0		
Output Image	Reserved																	

Specifications

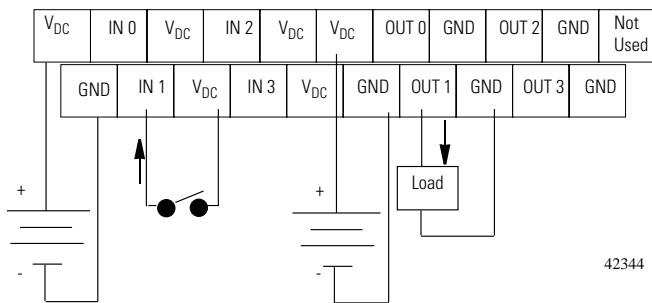
1791R-16B0 16 Sinking Input Specifications	
Inputs per block	groups of 4 or 8
Off-state Voltage	5V dc maximum
On-state Voltage	30V dc @ 40xC maximum 25V dc @ 60xC maximum 10V dc minimum
Off-state Current	1.5mA minimum
On-state Current	11mA @ 30V dc maximum 2mA @ 10V dc minimum

4 Sinking Input/4 Sourcing Output Base Module 1791R-4B4P and Expansion Modules



Use the DIP switches to set the baud rate before you power up the module.

Wiring Diagram - 1791R-4B4P Base Module



1791R-4B4P I/O images are below.

1791R-4B4P																	
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0	
Input Image	Reserved													I 3	I 2	I 1	I 0
Input Image	Reserved																
Output Image	Reserved													O 3	O 2	O 1	O 0
Output Image	Reserved																

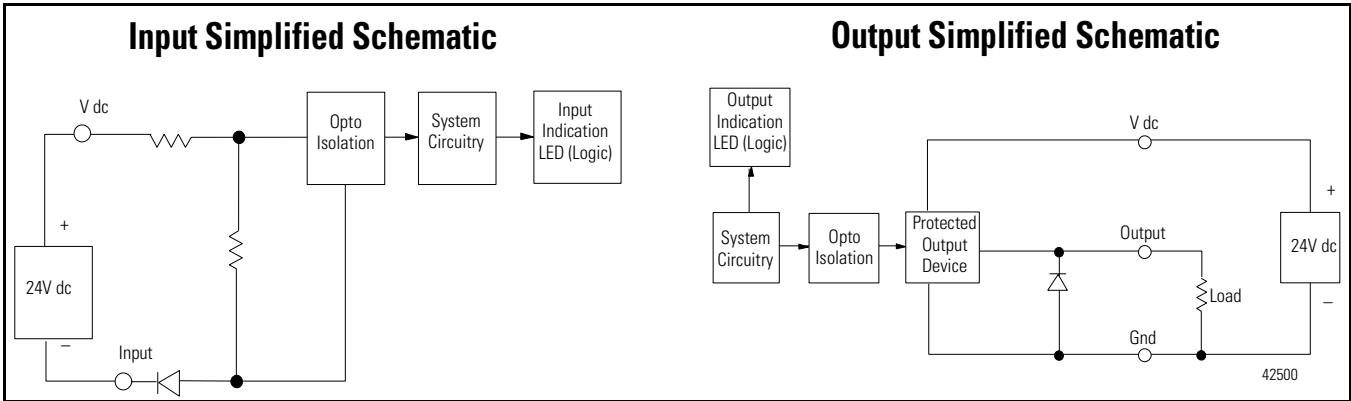
1791R-4B4P with 1791D-0B16PX																	
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0	
Input Image	Reserved													I 3	I 2	I 1	I 0
Input Image	Reserved																
Output Image	E X 0 11	E X 0 10	E X 0 9	E X 0 8	E X 0 7	E X 0 6	E X 0 5	E X 0 4	E X 0 3	E X 0 2	E X 0 1	E X 0 0	O 3	O 2	O 1	O 0	
Output Image	Reserved													E X 0 15	E X 0 14	E X 0 13	E X 0 12

1791R-4B4P with 1791D-16BOX																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	E X I 11	E X I 10	E X I 9	E X I 8	E X I 7	E X I 6	E X I 5	E X I 4	E X I 3	E X I 2	E X I 1	E X I 0	I 3	I 2	I 1	I 0
Input Image	Reserved												E X I 15	E X I 14	E X I 13	E X I 12
Output Image	Reserved												O 3	O 2	O 1	O 0
Output Image	Reserved															

Specifications

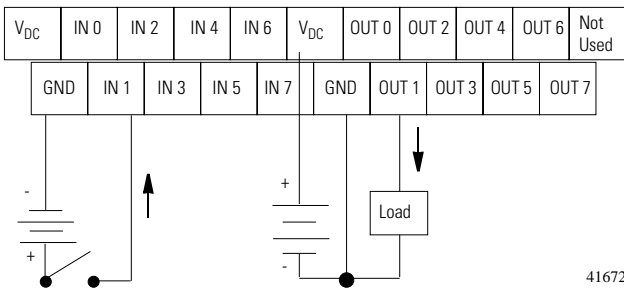
1791R-4B4P Sinking Input Specifications	
Inputs per block	groups of 4 or 8
Off-state Voltage	5V dc maximum
On-state Voltage	30V dc @ 40°C maximum 25V dc @ 60°C maximum 10V dc minimum
Off-state Current	1.5mA minimum
On-state Current	11mA @ 30V dc maximum 2mA @ 10V dc minimum
1791R-4B4P Sourcing Output Specifications	
Outputs per block	groups of 4 or 8
On-state Voltage Range	10 - 30V dc
On-state Voltage Drop	0.5V dc @ rated current
On-state Current	0.5A maximum
Off-state Leakage	1.0mA maximum
Module Current (per output)	0.5A maximum
Surge Current - for 10 mS repeatable every 2 S	1.0A maximum
Indicators	Status - red/green/orange Comm - green I/O - yellow
Communication Rate	57.6Kbps @ 3048m (10000ft) 115.2Kbps @ 1524m (5000ft) 230.4Kbps @ 762m (2500ft)

8 Sinking Input/8 Sourcing Output Base Module 1791R-8B8P and Expansion Modules



Use the DIP switches to set the baud rate before you power up the module.

Wiring Diagram - 1791R-8B8P Base Module



1791R-8B8P I/O images are below.

1791R-8B8P																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	Reserved								I7	I6	I5	I4	I3	I2	I1	I0
Input Image	Reserved															
Output Image	Reserved								O7	O6	O5	O4	O3	O2	O1	O0
Output Image	Reserved															

1791R-8B8P with 1791D-16B0X																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	E X I7	E X I6	E X I5	E X I4	E X I3	E X I2	E X I1	E X I0	I7	I6	I5	I4	I3	I2	I1	I0
Input Image	Reserved								E X I15	E X I14	E X I13	E X I12	E X I11	E X I10	E X I9	E X I8
Output Image	Reserved								O7	O6	O5	O4	O3	O2	O1	O0
Output Image	Reserved															

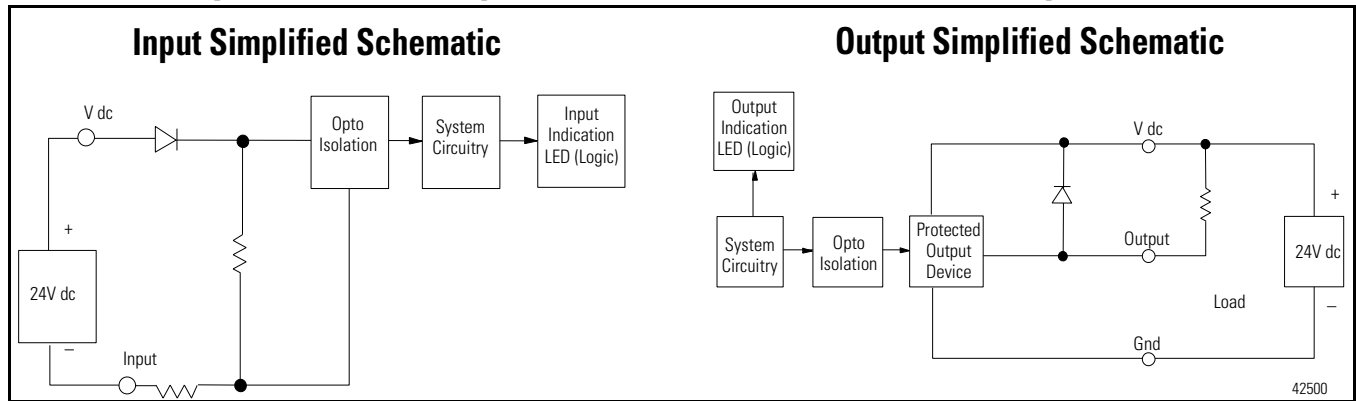
1791R-8B8P with 1791D-0B16PX																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	Reserved								I7	I6	I5	I4	I3	I2	I1	I0
Input Image	Reserved															
Output Image	E X O7	E X O6	E X O5	E X O4	E X O3	E X O2	E X O1	E X O0	O7	O6	O5	O4	O3	O2	O1	O0
Output Image	Reserved								E X O15	E X O14	E X O13	E X O12	E X O11	E X O10	E X O9	E X O8

Specifications

1791R-8B8P Sinking Input Specifications	
Inputs per block	groups of 4 or 8
Off-state Voltage	5V dc maximum
On-state Voltage	30V dc @ 40×C maximum 25V dc @ 60×C maximum 10V dc minimum
Off-state Current	1.5mA minimum
On-state Current	11mA @ 30V dc maximum 2mA @ 10V dc minimum

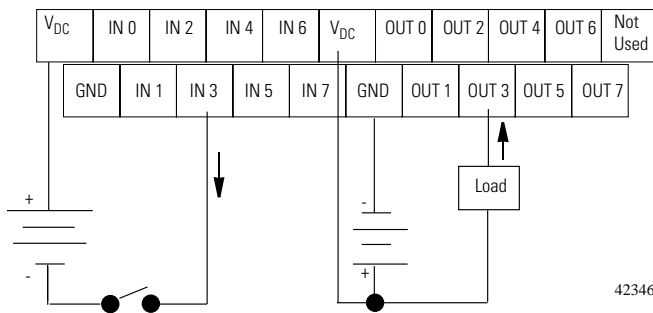
1791R-8B8P Sourcing Output Specifications	
Outputs per block	groups of 4 or 8
On-state Voltage Range	10 - 30V dc
On-state Voltage Drop	0.5V dc @ rated current
On-state Current	0.5A maximum
Off-state Leakage	1.0mA maximum
Module Current (per output)	0.5A maximum
Surge Current - for 10 mS repeatable every 2 S	1.0A maximum
Indicators	Status - red/green/orange Comm - green I/O - yellow
Communication Rate	57.6Kbps @ 3048m (10000ft) 115.2Kbps @ 1524m (5000ft) 230.4Kbps @ 762m (2500ft)

8 Sourcing Input/8 Sinking Output Base Module 1791R-8V8P and Expansion Modules



Use the DIP switches to set the baud rate before you power up the module.

Wiring Diagram - 1791R-8V8P Base Module



The 1791R-8V8P I/O images are below.

1791R-8V8P																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	Reserved								I 7	I 6	I 5	I 4	I 3	I 2	I 1	I 0
Input Image	Reserved															
Output Image	Reserved								O 7	O 6	O 5	O 4	O 3	O 2	O 1	O 0
Output Image	Reserved															

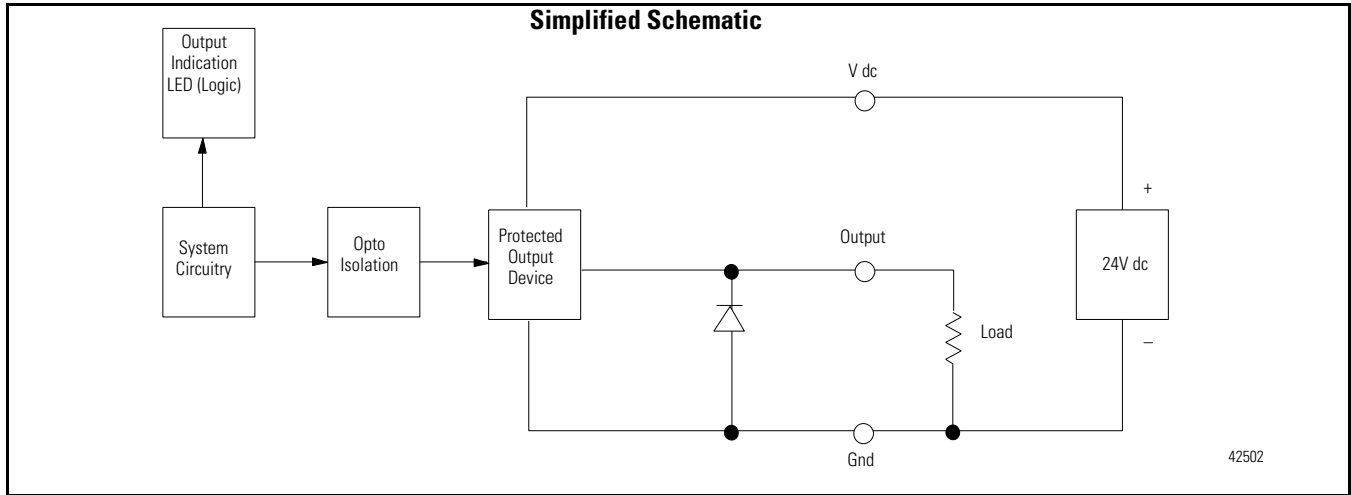
1791R-8V8P with 1791D-16VOX																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	E X I 7	E X I 6	E X I 5	E X I 4	E X I 3	E X I 2	E X I 1	E X I 0	I 7	I 6	I 5	I 4	I 3	I 2	I 1	I 0
Input Image	Reserved								E X I 15	E X I 14	E X I 13	E X I 12	E X I 11	E X I 10	E X I 9	E X I 8
Output Image	Reserved								O 7	O 6	O 5	O 4	O 3	O 2	O 1	O 0
Output Image	Reserved															

1791R-8V8P with 1791D-0V16PX																
	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
Input Image	Reserved								I 7	I 6	I 5	I 4	I 3	I 2	I 1	I 0
Input Image	Reserved															
Output Image	E X O 7	E X O 6	E X O 5	E X O 4	E X O 3	E X O 2	E X O 1	E X O 0	O 7	O 6	O 5	O 4	O 3	O 2	O 1	O 0
Output Image	Reserved								E X O 15	E X O 14	E X O 13	E X O 12	E X O 11	E X O 10	E X O 9	E X O 8

Specifications

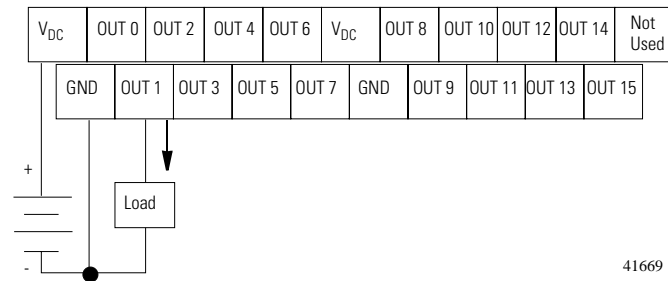
1791R-8V8B Sourcing Input Specifications	
Inputs per block	groups of 4 or 8
Off-state Voltage	5V dc maximum
On-state Voltage	30V dc @ 40°C maximum 25V dc @ 60°C maximum 10V dc minimum
Off-state Current	1.5mA minimum
On-state Current	11mA @ 30V dc maximum 2mA @ 10V dc minimum
1791R-8V8B Sinking Output Specifications	
Outputs per block	groups of 4 or 8
On-state Voltage Range	10 - 30V dc
On-state Voltage Drop	0.5V dc @ rated current
On-state Current	0.5A maximum
Off-state Leakage	1.0mA maximum
Module Current (per output)	0.5A maximum
Surge Current - for 10 mS repeatable every 2 S	1.0A maximum
Indicators	Status - red/green/orange Comm - green I/O - yellow
Communication Rate	57.6Kbps @ 3048m (10000ft) 115.2Kbps @ 1524m (5000ft) 230.4Kbps @ 762m (2500ft)

16 Sourcing Output Base Module 1791R-OB16P and Expansion Modules



Use the DIP switches to set the baud rate before you power up the module.

Output Wiring Diagram - 1791R-OB16P and 1791D-OB16PX Modules.



1791R-OB16P I/O images are below.

1791R-OB16P																		
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input Image	Reserved																	
Input Image	Reserved																	
Output Image	015	014	013	012	011	010	009	008	007	006	005	004	003	002	001	000	000	000
Output Image	Reserved																	

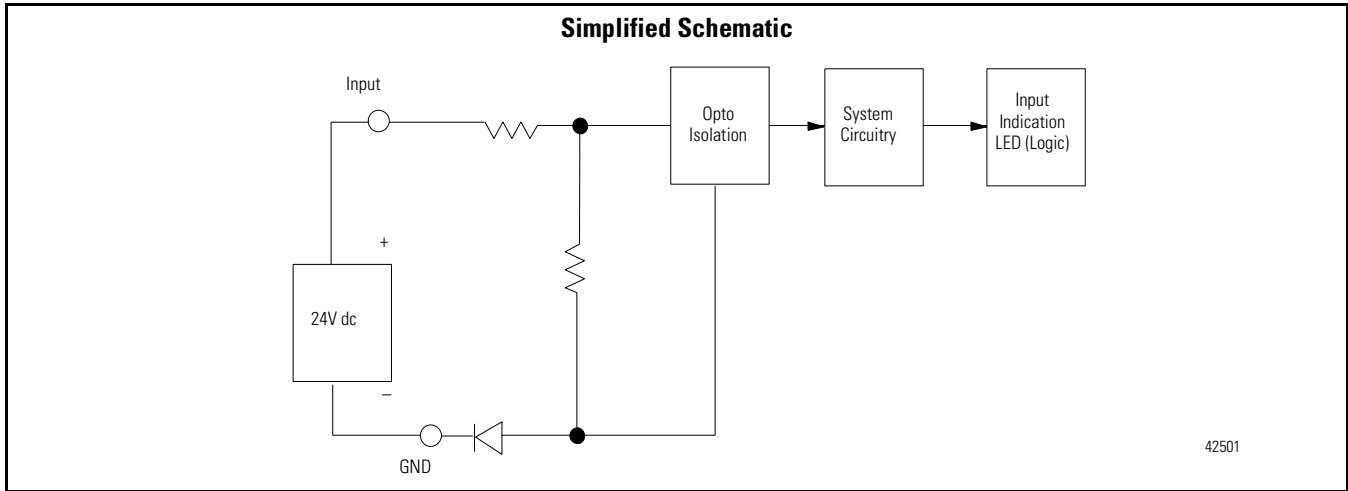
1791R-OB16P with 1791D-OB16PX																		
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input Image	Reserved																	
Input Image	Reserved																	
Output Image	015	014	013	012	011	010	009	008	007	006	005	004	003	002	001	000	000	000
Output Image	E X 15	E X 14	E X 13	E X 12	E X 11	E X 10	E X 09	E X 08	E X 07	E X 06	E X 05	E X 04	E X 03	E X 02	E X 01	E X 00	E X 00	E X 00

1791R-OB16P with 1791D-16B0X																		
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Input Image	E X 15	E X 14	E X 13	E X 12	E X 11	E X 10	E X 09	E X 08	E X 07	E X 06	E X 05	E X 04	E X 03	E X 02	E X 01	E X 00	E X 00	E X 00
Input Image	Reserved																	
Output Image	015	014	013	012	011	010	009	008	007	006	005	004	003	002	001	000	000	000
Output Image	Reserved																	

Specifications

16 Sourcing Output Module (1791R-OB16P) Specifications	
Outputs per block	groups of 4 or 8
On-state Voltage Range	10 - 30V dc
On-state Voltage Drop	0.5V dc @ rated current
On-state Current	0.5A maximum
Off-state Leakage	1.0mA maximum
Module Current (per output)	0.5A maximum
Surge Current - for 10 mS repeatable every 2 S	1.0A maximum
Indicators	Status - red/green/orange Comm - green I/O - yellow
Communication Rate	57.6Kbps @ 3048m (10000ft) 115.2Kbps @ 1524m (5000ft) 230.4Kbps @ 762m (2500ft)

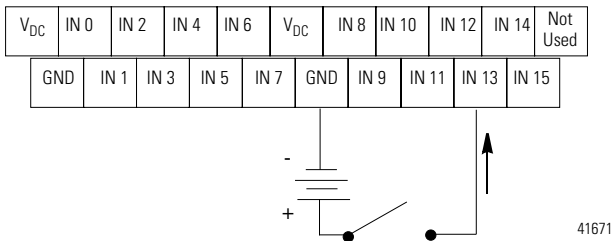
16 Sinking Input Expansion Module 1791D-16BOX



The 1791D-16BOX CompactBlock expansion module I/O can be used with the 1791 Remote I/O modules.

Wiring Connections

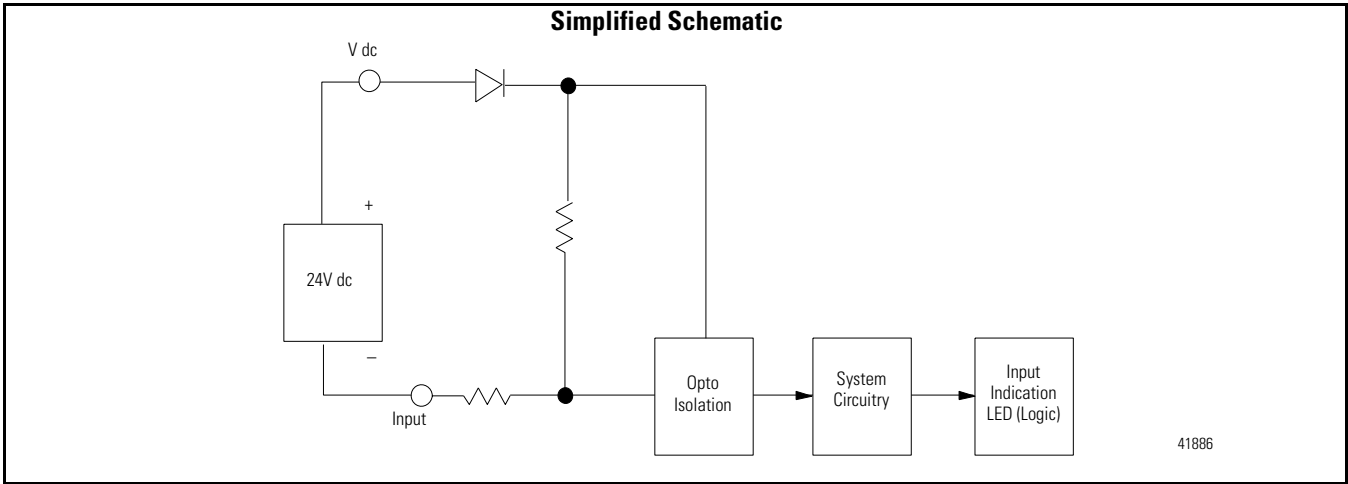
Input Wiring Diagram for 1791D-16BOX Expansion Module



Specifications

Sinking Inputs	Max
Inputs per Block	2 groups of 8
Off-state Voltage	5V dc
On-state Voltage	30V dc @ 40°C 24V dc @ 60°C 10V dc minimum
Off-state Current	1.5mA @ 5V dc
On-state Current	11mA @ 30V dc

16 Sourcing Input Expansion Module 1791D-16VOX



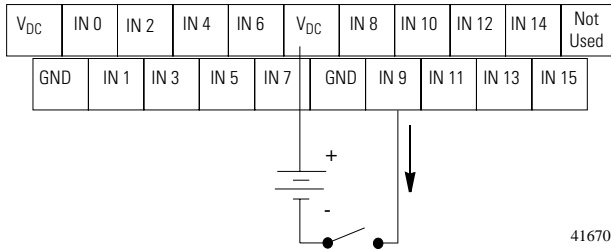
The 1791D-16VOX CompactBlock expansion module I/O can be used with the 1791 Remote I/O modules.

Specifications

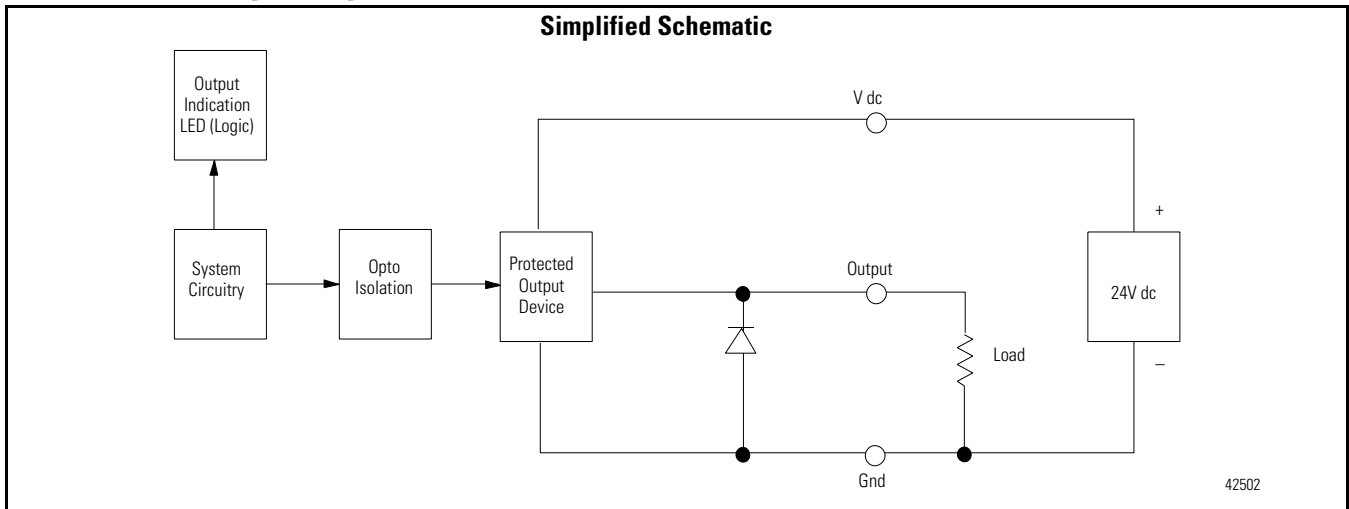
Sourcing Inputs	Max
Inputs per Block	2 groups of 8
Off-state Voltage	5V dc
On-state Voltage	30V dc @ 40°C 24V dc @ 60°C 10V dc minimum
Off-state Current	1.5mA @ 5V dc
On-state Current	11mA @ 30V dc

Wiring Connections

Input Wiring Diagram for 1791D-16VOX Expansion Module



16 Sourcing Output Expansion Module 1791D-0B16PX



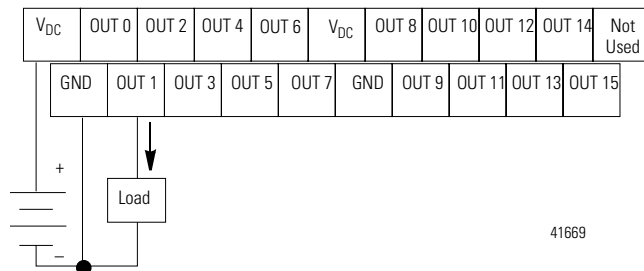
The 1791D-0B16PX CompactBlock expansion module I/O can be used with the 1791 Remote I/O modules.

Specifications

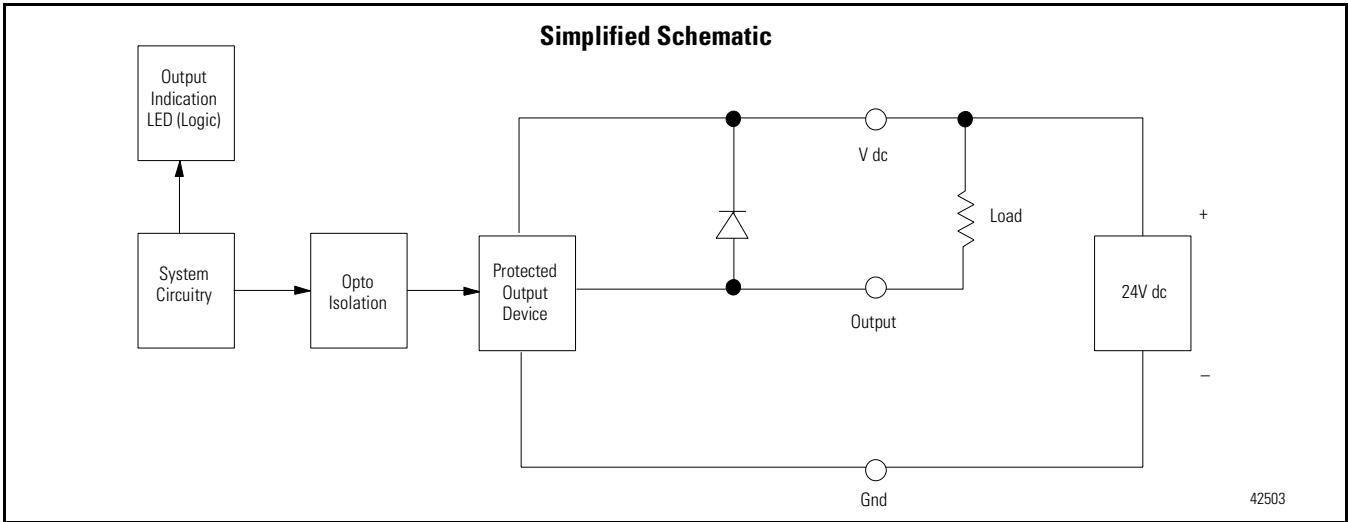
Sourcing Outputs	
Outputs per Block	2 groups of 8
On-state Voltage Range	10 - 30V dc
On-state Voltage Drop	0.5V dc @ rated current
On-state Current	0.5A maximum
Off-state Leakage	1.0mA maximum
Module Current (all outputs)	4.0A maximum
Surge Current - for 10ms, repeatable every 2 s	1.0A maximum

Wiring Connections

Output Wiring Diagram for 1791D-0B16PX Expansion Module



16 Sinking Output Expansion Module 1791D-0V16PX



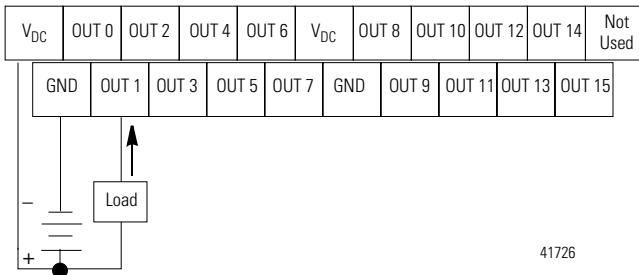
The 1791D-0V16PX CompactBlock expansion module I/O can be used with the 1791 Remote I/O modules.

Specifications

Sinking Outputs	
Outputs per Block	2 groups of 8
On-state Voltage Range	10 - 30V dc
On-state Voltage Drop	0.5V dc @ rated current
On-state Current	0.5A maximum
Off-state Leakage	1.0mA maximum
Module Current (all outputs)	4.0A maximum
Surge Current - for 10ms repeatable every 2 s	1.0A maximum

Wiring Connections

Output Wiring Diagram for 1791D-0V16PX Expansion Module



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