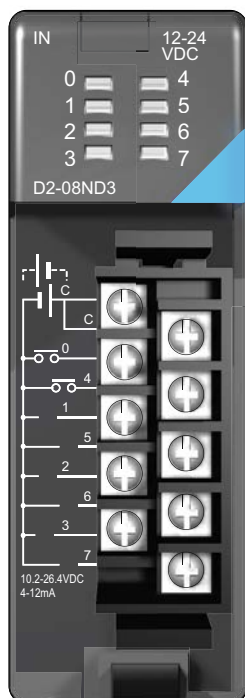
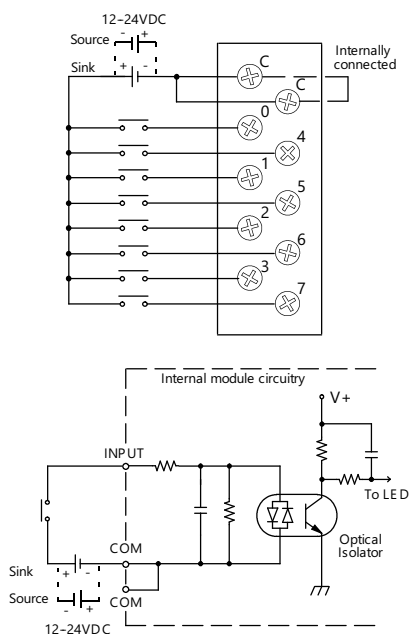
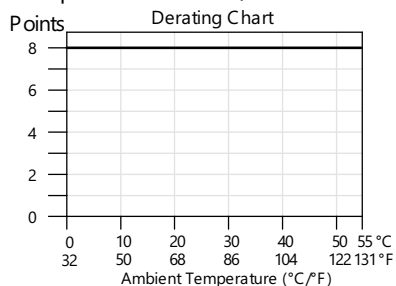


DC Input Modules

D2-08ND3 DC Input \$81.00	
Inputs per Module	8 (sink/source)
Commons per Module	1 (2 I/O terminal points)
Input Voltage Range	10.2-26.4 VDC
Peak Voltage	26.4 VDC
ON Voltage Level	9.5 VDC minimum
OFF Voltage Level	3.5 VDC maximum
AC Frequency	N/A
Input Impedance	2.7 kΩ
Input Current	4.0 mA @ 12VDC 8.5 mA @ 24VDC
Minimum ON Current	3.5 mA
Maximum OFF Current	1.5 mA
Base Power Required 5VDC	50mA
OFF to ON Response	1 to 8 ms
ON to OFF Response	1 to 8 ms
Terminal Type (included)	Removable, D2-8IOCON
Status Indicator	Logic side
Weight	2.3 oz. (65g)

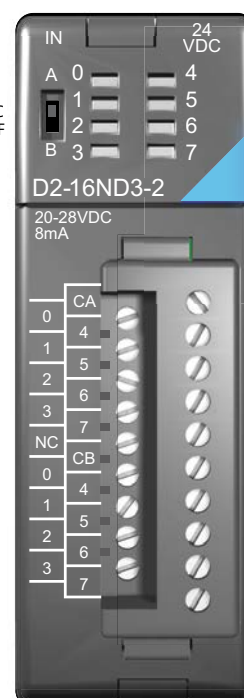
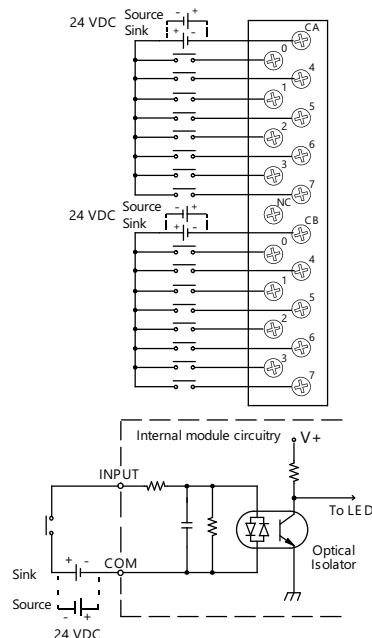
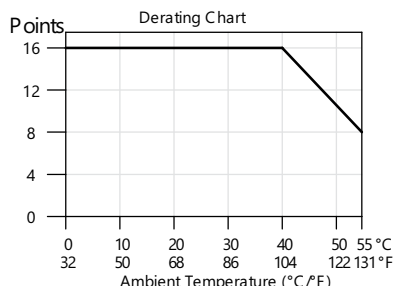
See Wiring Solutions for part numbers of **ZIP**Link cables and connection modules compatible with this I/O module.



For "Sinking and Sourcing Concepts", see the Appendix section.

D2-16ND3-2 DC Input \$137.00	
Inputs per Module	16 (sink/source)
Commons per Module	2 isolated (8 I/O terminal points / com)
Input Voltage Range	20-28 VDC
Peak Voltage	30VDC (10mA)
ON Voltage Level	19 VDC minimum
OFF Voltage Level	7VDC maximum
AC Frequency	N/A
Input Impedance	3.9 kΩ
Input Current	6mA @ 24VDC
Minimum ON Current	3.5 mA
Maximum OFF Current	1.5 mA
Base Power Required 5VDC	100mA
OFF to ON Response	3 to 9 ms
ON to OFF Response	3 to 9 ms
Terminal Type (included)	Removable, D2-16IOCON
Status Indicator	Logic side
Weight	2.3 oz. (65g)

See Wiring Solutions for part numbers of **ZIP**Link cables and connection modules compatible with this I/O module.

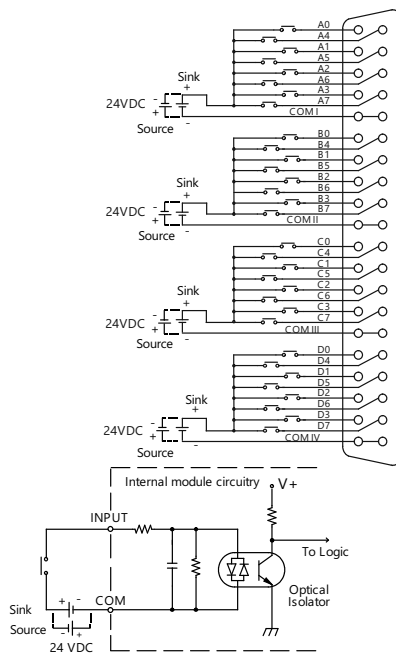
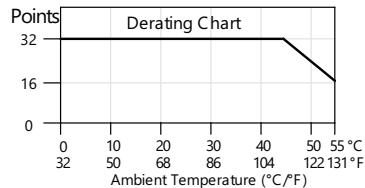


For "Sinking and Sourcing Concepts" see the Appendix section.

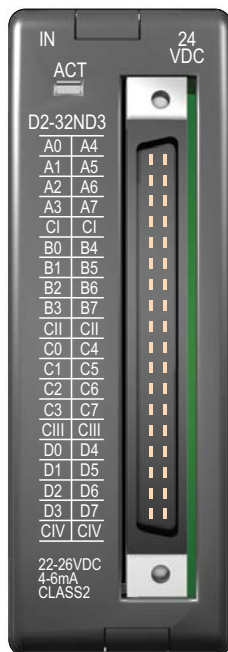
DC Input Modules

D2-32ND3 DC Input \$190.00	
Inputs per Module	32 (sink/source)
Commons per Module	4 isolated (8 I/O terminal points / com)
Input Voltage Range	20-28 VDC
Peak Voltage	30VDC
ON Voltage Level	19VDC minimum
OFF Voltage Level	7VDC maximum
AC Frequency	N/A
Input Impedance	4.8 kΩ
Input Current	8.0 mA @ 24VDC
Minimum ON Current	3.5 mA
Maximum OFF Current	1.5 mA
Base Power Required 5VDC	25mA
OFF to ON Response	3 to 9 ms
ON to OFF Response	3 to 9 ms
Terminal Type (not included)	40-pin Connector ¹
Status Indicator	Module Activity LED
Weight	2.1 oz. (60g)
1 Connector sold separately. See Terminal Blocks and Wiring for wiring options.	

See Wiring Solutions for part numbers of **ZIP**Link cables and connection modules compatible with this I/O module.



For "Sinking and Sourcing Concepts", see the Appendix section.



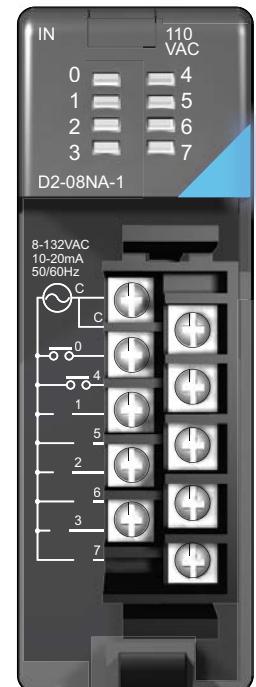
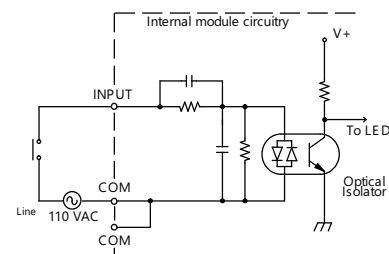
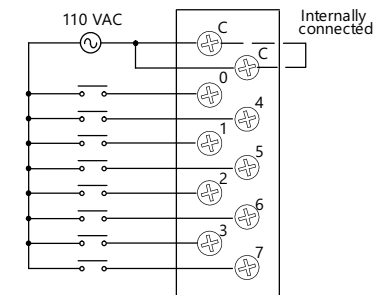
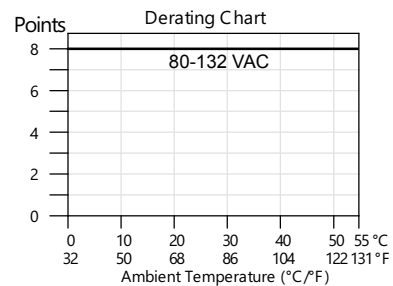
Simulator/AC Input Modules

F2-08SIM Input Simulator \$107.00	
Inputs per Module	8
Base Power Required 5VDC	50mA
Terminal Type	None
Status Indicator	Switch side
Weight	2.65 oz. (75g)



D2-08NA-1 AC Input \$116.00	
Inputs per Module	8
Commons per Module	1 (2 I/O terminal points)
Input Voltage Range	80-132 VAC
Peak Voltage	132 VAC
ON Voltage Level	75VAC minimum
OFF Voltage Level	20VAC maximum
AC Frequency	47-63 Hz
Input Impedance	12k Ω @ 60Hz
Input Current	13mA @ 100VAC, 60Hz 11mA @ 100VAC, 50Hz
Minimum ON Current	5mA
Maximum OFF Current	2mA
Base Power Required 5VDC	50mA
OFF to ON Response	5 to 30 ms
ON to OFF Response	10 to 50 ms
Terminal Type (included)	Removable; D2-8IOCON
Status Indicator	Logic side
Weight	2.5 oz. (70g)

See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.



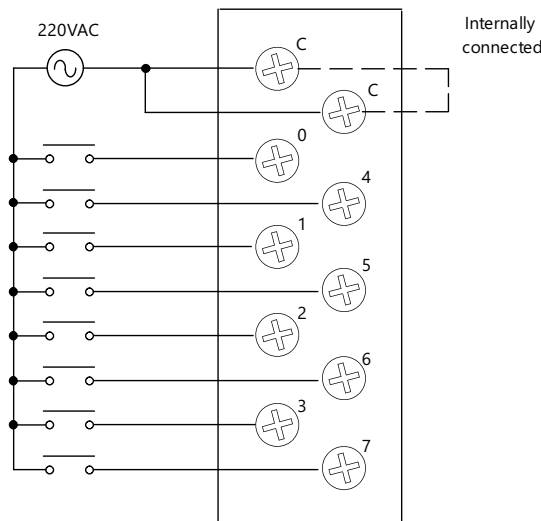
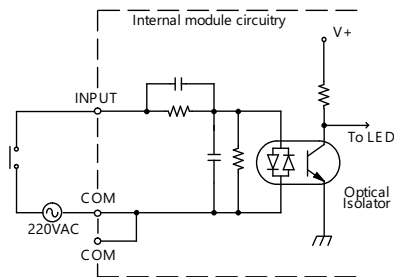
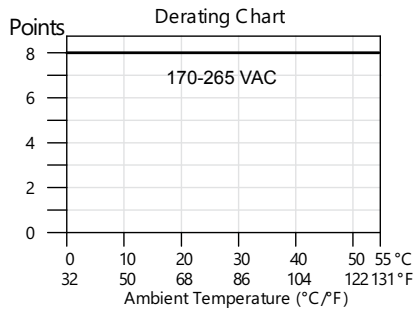
AC Input Modules

D2-08NA-2 AC Input \$148.00	
Inputs per Module	8
Commons per Module	1 (2 I/O terminal points)
Input Voltage Range	170-265 VAC
Peak Voltage	265VAC
ON Voltage Level	150VAC minimum
OFF Voltage Level	40VAC maximum
AC Frequency	47-63 Hz
Input Impedance	18k Ω @ 60Hz
Input Current	9mA @ 220VAC, 50Hz 11mA @ 265VAC, 50Hz 10mA @ 220VAC, 60Hz 12mA @ 265VAC, 60Hz
Minimum ON Current	10mA
Maximum OFF Current	2mA
Base Power Required 5VDC	100mA
OFF to ON Response	5 to 30 ms
ON to OFF Response	10 to 50 ms
Terminal Type (included)	Removable; D2-8IOCON
Status Indicator	Logic side
Weight	2.5 oz. (70g)

Operating Temperature	32°F to 131°F (0° to 55°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Humidity	35% to 95% (non-condensing)
Atmosphere	No corrosive gases permitted
Vibration	MIL STD 810C 514.2
Shock	MIL STD 810C 516.2
Insulation Withstand Voltage	1,500VAC 1 minute (COM-GND)
Insulation Resistance	10M $\approx$ @ 500VDC
Noise Immunity	NEMA 1,500V 1 minute SANKI 1,000V 1 minute
RFI	150MHz, 430MHz

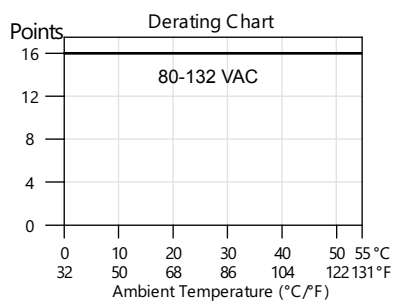


See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.



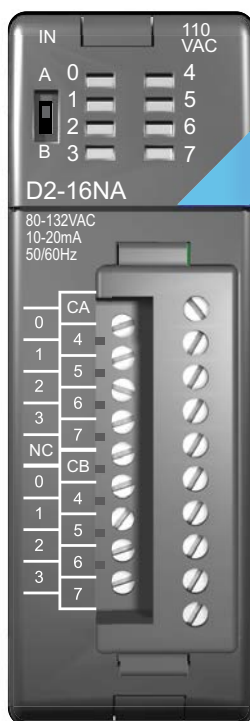
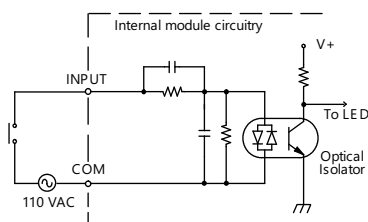
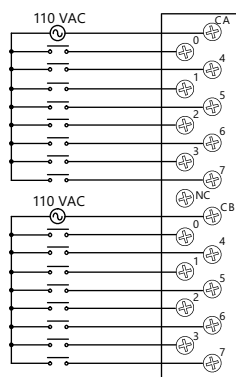
AC Input Modules

D2-16NA AC Input \$204.00	
Inputs per Module	16
Commons per Module	2 (isolated)
Input Voltage Range	80-132 VAC
Peak Voltage	132VAC
ON Voltage Level	70VAC minimum
OFF Voltage Level	20VAC maximum
AC Frequency	47-63 Hz
Input Impedance	12 k Ω @ 60 Hz
Input Current	11mA @ 100VAC, 50Hz 13mA @ 100VAC, 60Hz 15mA @ 132VAC, 60Hz
Minimum ON Current	5mA
Maximum OFF Current	2mA
Base Power Required 5VDC	100mA
OFF to ON Response	5 to 30 ms
ON to OFF Response	10 to 50 ms
Terminal Type (included)	Removable; D2-16IOCON
Status Indicator	Logic side
Weight	2.4 oz. (68g)



See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.

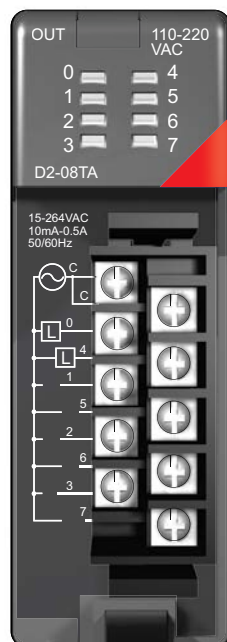
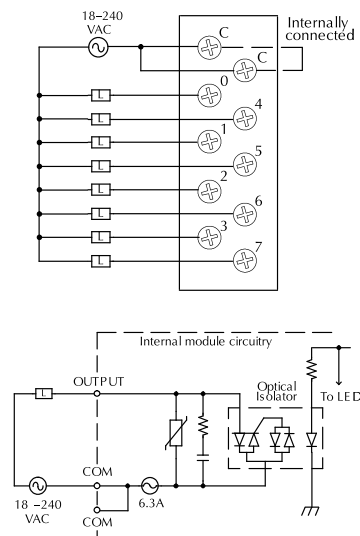
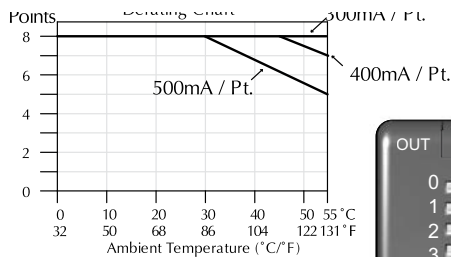
Note: When used with the ZIPLink wiring system, relay outputs are derated not to exceed 2 Amps per point max.



AC Output Modules

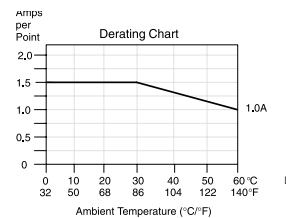
D2-08TA AC Output \$165.00	
Outputs per Module	8
Commons per Module	1 (2 I/O terminal points)
Output Type	SSR (Triac)
Operating Voltage	15-264 VAC
Peak Voltage	264VAC
ON Voltage Drop	< 1.5 VAC (>0.1 A) < 3.0 VAC (<0.1 A)
AC Frequency	47 to 63 Hz
Minimum Load Current	10mA
Max Load Current	0.5 A/point; 4A/common
Max Leakage Current	4mA (264VAC, 60Hz) 1.2 mA (100VAC, 60Hz) 0.9 mA (100VAC, 50Hz)
Max Inrush Current	10A for 10ms
Base Power Required 5VDC	250mA
OFF to ON Response	1ms
ON to OFF Response	1ms + 1/2 cycle
Terminal Type (included)	Removable; D2-8IOCON
Status Indicator	Logic side
Weight	2.8 oz. (80g)
Fuses	1 per common, 6.3 A slow blow, non-replaceable

See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.

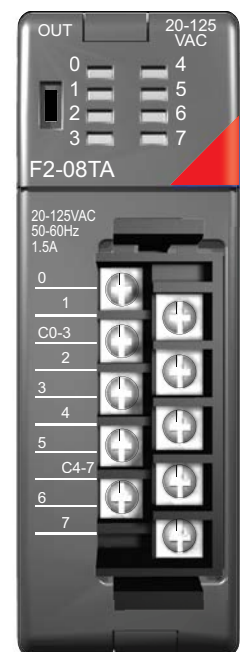
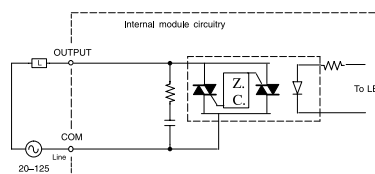
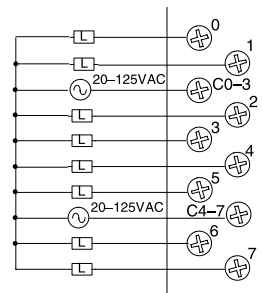


F2-08TA AC Output \$208.00	
Outputs per Module	8
Commons per Module	2 (Isolated)
Output Type	SSR (Triac with zero crossover)
Operating Voltage	24-140 VAC
Peak Voltage	140VAC
ON Voltage Drop	1.6 V(rms) @ 1.5 A
AC Frequency	47 to 63 Hz
Minimum Load Current	50mA
Max Load Current	1.5 A / pt @ 30°C 1.0 A / pt @ 60°C 4.0 A / common; 8.0 A / module @ 60°C
Max Leakage Current	0.7 mA(rms)
Peak One Cycle Surge Current	15A
Base Power Required 5VDC	250mA
OFF to ON Response	0.5 ms - 1/2 cycle
ON to OFF Response	0.5 ms - 1/2 cycle
Terminal Type (included)	Removable; D2-8IOCON
Status Indicator	Logic side
Weight	3.5 oz. (99g)
Fuses	None

See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.



Derating Note: All outputs can be run at the current per point shown.

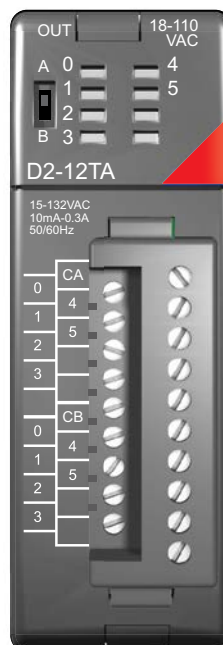
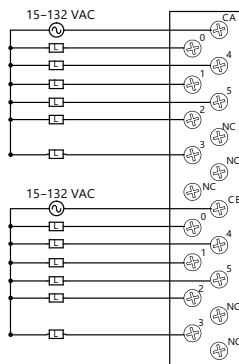
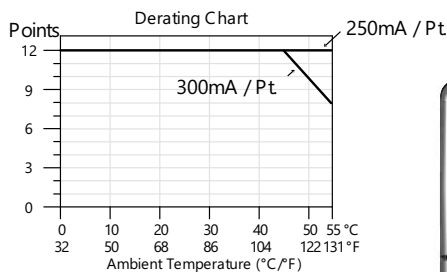


AC Output Modules

D2-12TA AC Output \$204.00	
Outputs per Module	12
Outputs Points Consumed	16 (four unused, see chart below)
Commons per Module	2 (isolated)
Output Type	SSR (Triac)
Operating Voltage	15-132 VAC
Peak Voltage	132 VAC
ON Voltage Drop	< 1.5VAC (>50mA) < 4.0VAC (<50mA)
AC Frequency	47 to 63 Hz
Minimum Load Current	10mA
Max Load Current	0.3 A/point; 1.8 A/common
Max Leakage Current	2mA (132VAC, 60Hz)
Max Inrush Current	10A for 10ms
Base Power Required 5VDC	350mA
OFF to ON Response	1ms
ON to OFF Response	1ms + 1/2 cycle
Terminal Type (included)	Removable; D2-16IOCON
Status Indicator	Logic side
Weight	2.8 oz. (80g)
Fuses	(2) 1 per common 3.15 A slow blow, replaceable Order D2-FUSE-1 (5 per pack)

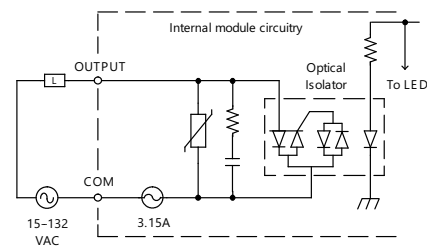
See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.

Note: When used with the **ZIPLink** wiring system, relay outputs are derated not to exceed 2 Amps per point max.



Addresses Used			
Points	Used?	Points	Used?
Yn+0	Yes	Yn+10	Yes
Yn+1	Yes	Yn+11	Yes
Yn+2	Yes	Yn+12	Yes
Yn+3	Yes	Yn+13	Yes
Yn+4	Yes	Yn+14	Yes
Yn+5	Yes	Yn+15	Yes
Yn+6	No	Yn+16	No
Yn+7	No	Yn+17	No

n is the starting address





Wiring Solutions

Wiring Solutions using the ZIPLink Wiring System

ZIPLinks eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep

installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring

solutions available when using the ZIPLink System ranging from PLC I/O-to-ZIPLink Connector Modules that are ready for field

termination, options for connecting to third party devices, GS, DuraPulse and SureServo Drives, as well as special relay, transorb and communications modules. Pre-printed I/O-specific adhesive label strips for quick marking of ZIPLink modules are provided with ZIPLink cables. See the following solutions to help determine the best ZIPLink system for your application.

Solution 1: Do-more, DirectLOGIC, CLICK and Productivity Series I/O Modules to ZIPLink Connector Modules

When looking for quick and easy I/O-to-field termination, a ZIPLink connector module used in conjunction with a prewired ZIPLink cable, consisting of an I/O terminal block at one end and a multi-pin connector at the other end, is the best solution.

Using the PLC I/O Modules to ZIPLink Connector Modules selector tables located in this section,

1. Locate your I/O module/PLC
2. Select a ZIPLink Module
3. Select a corresponding ZIPLink Cable.



Solution 2: Do-more, DirectLOGIC, CLICK and Productivity Series I/O Modules to 3rd Party Devices

When wanting to connect I/O to another device within proximity of the I/O modules, no extra terminal blocks are necessary when using the ZIPLink Pigtail Cables. ZIPLink Pigtail Cables are prewired to an I/O terminal block with color-coded pigtail with soldered-tip wires on the other end.

Using the I/O Modules to 3rd Party Devices selector tables located in this section,

1. Locate your PLC I/O module
2. Select a ZIPLink Pigtail Cable that is compatible with your 3rd party device.



Solution 3: GS Series and DuraPulse Drives Communication Cables

Need to communicate via Modbus RTU to a drive or a network of drives?

ZIPLink cables are available in a wide range of configurations for connecting to PLCs and SureServo, SureStep, Stellar Soft Starter and AC drives. Add a ZIPLink communications module to quickly and easily set up a multi-device network.

Using the Drives Communication selector tables located in this section,

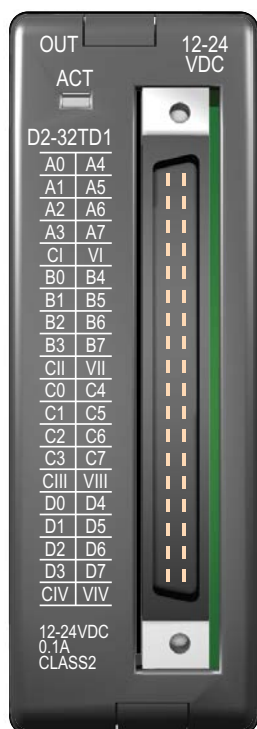
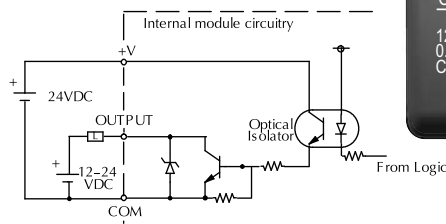
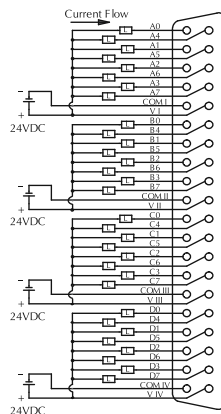
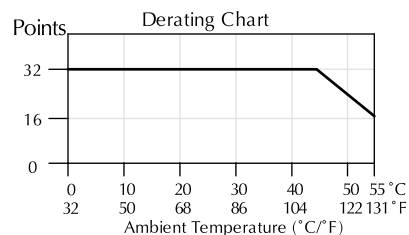
1. Locate your Drive and type of communications
2. Select a ZIPLink cable and other associated hardware.



DC Output Modules

D2-32TD1 DC Output \$193.00	
Outputs per Module	32 (current sinking)
Commons per Module	4 (8 I/O terminal points)
Output Type	NPN open collector
Operating Voltage	12-24 VDC
Peak Voltage	30VDC
ON Voltage Drop	0.5 VDC maximum
Minimum Load Current	0.2 mA
Max Load Current	0.1 A/point; 3.2 A per module
Max Leakage Current	0.1 mA @ 30VDC
Max Inrush Current	150mA for 10ms
Base Power Required 5VDC	350mA
OFF to ON Response	0.5 ms
ON to OFF Response	0.5 ms
Terminal Type (not included)	40-pin connector ¹
Status Indicator	Module activity (no I/O status indicators)
Weight	2.1 oz. (60g)
Fuses	None
External DC Power Required	20-28 VDC max. 120mA (all points on)
¹ Connector sold separately. See Terminal Blocks and Wiring for wiring options.	

See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.



D2-32TD2 DC Output \$193.00	
Outputs per Module	32 (current sourcing)
Commons per Module	4 (8 I/O terminal points)
Output Type	Transistor
Operating Voltage	12 to 24 VDC
Peak Voltage	30VDC
ON Voltage Drop	0.5 VDC @ 0.1 A
Minimum Load Current	0.2 mA
Max Load Current	0.1 A/point; 0.8 A/common
Max Leakage Current	0.1 mA @ 30VDC
Max Inrush Current	150mA @ 10ms
Base Power Required 5VDC	350mA
OFF to ON Response	0.5 ms
ON to OFF Response	0.5 ms
Terminal Type (not included)	40-pin connector ¹
Status Indicator	Module activity (no I/O status indicators)
Weight	2.1 oz (60g)
Fuses	None
¹ Connector sold separately. See Terminal Blocks and Wiring for wiring options.	

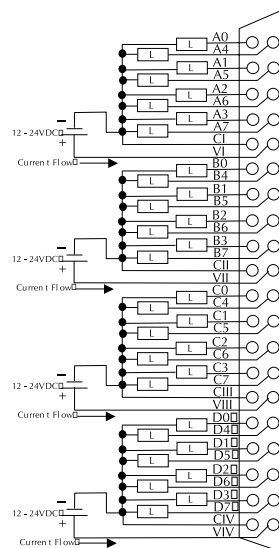
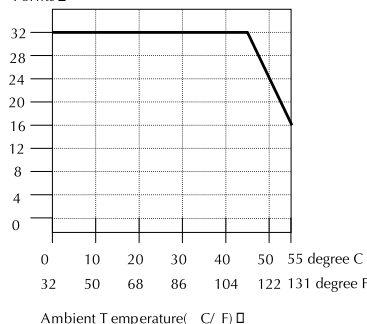
See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules compatible with this I/O module.



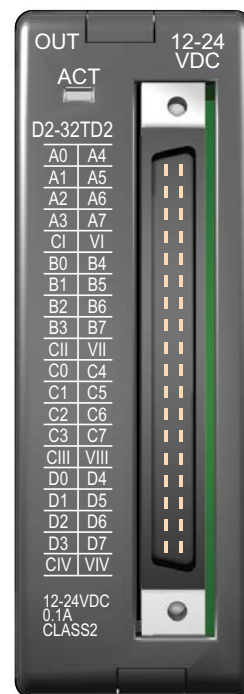
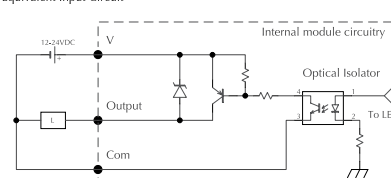
Derating Chart

Output current: 0.1A

Points □



Equivalent Input Circuit



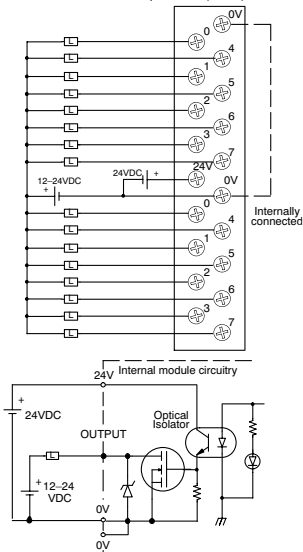
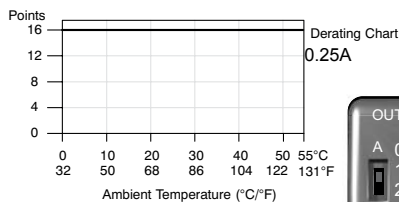
DC Output Modules

Not supported in D2-250 CPUs.

F2-16TD1P DC Output with Fault Protection \$162.00	
Inputs per module	16 (status indication)
Outputs per module	16 (current sinking)
Commons per module	1 (2 I/O terminal points)
Output type	NMOS FET (open drain)
Operating voltage	10.2–26.4 VDC, external
Peak voltage	40VDC
AC frequency	N/A
ON voltage drop	0.7 V (output current 0.5 A)
Overcurrent trip	0.6 A min., 1.2 A max.
Minimum load current	0.2 mA
Maximum load current	0.25 A/point; 4A/common
Max leakage current	0.2 mA (load detect enabled); 0.3 mA disabled
Max inrush current	Self-limited
Base power required 5V	70mA
OFF to ON response	0.5 ms
ON to OFF response	0.5 ms
Terminal type	Removable (D2-16IOCON)
Status indicators	Logic Side
Weight	2.0 oz. (25g)
Fuses	None
External DC required	24VDC $\pm 10\%$ @ 50mA
External DC overvoltage shutdown	27V, outputs are restored when voltage is within limits

Module detects the following faults:

1. Missing external 24VDC
2. Open load
3. Over temperature
4. Over load current



When the A/B switch is in the A position, the LEDs display the output status of the module's first 8 output points. Position B displays the output status of the module's second group of 8 output points.

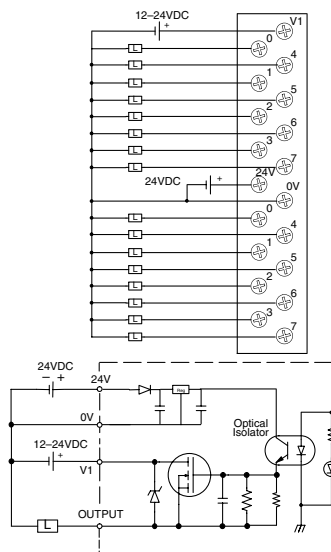
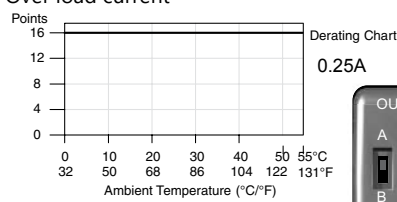
CPU	Firmware Required
D2-250-1	Version 4.80 or later
D2-262	Version 1.0 or later

Not supported in D2-250 CPUs.

F2-16TD2P DC Output with Fault Protection \$163.00	
Inputs per module	16 (status indication)
Outputs per module	16 (current sourcing)
Commons per module	1
Output type	NMOS FET (open source)
Operating voltage	10.2–26.4 VDC, external
Peak voltage	40VDC
AC frequency	N/A
ON voltage drop	0.7 V (output current 0.5 A)
Overcurrent trip	0.6 A min., 1.2 A max.
Minimum load current	0.2 mA
Maximum load current	0.25 A/point; 4A/common
Max leakage current	0.2 mA (load detect enabled); 0.3 mA disabled
Max inrush current	Self-limited
Base power required 5V	70mA
OFF to ON response	0.5 ms
ON to OFF response	0.5 ms
Terminal type	Removable (D2-16IOCON)
Status indicators	Logic Side
Weight	2.0 oz. (25g)
Fuses	None
External DC required	24VDC $\pm 10\%$ @ 50mA
External DC overvoltage shutdown	27V, outputs are restored when voltage is within limits

Module detects the following faults:

1. Missing external 24VDC
2. Open load
3. Over temperature
4. Over load current



When the A/B switch is in the A position, the LEDs display the output status of the module's first 8 output points. Position B displays the output status of the module's second group of 8 output points.

CPU	Firmware Required
D2-250-1	Version 4.80 or later
D2-262	Version 1.0 or later



Power Requirements

These charts help determine your power requirements

This section shows the amount of power supplied by each of the base power supplies and the amount of power consumed by each DL205 device. The Power Consumed charts list how much INTERNAL power from each power source is required for the DL205 devices. Use this information when calculating the power budget for your system.

In addition to the internal power sources, the DL205 bases offer a 24 VDC auxiliary power supply with external power connections. This auxiliary power supply can power external devices.

Use ZIPLinks to reduce power requirements

If your application requires a lot of relay outputs, consider using the ZIPLink AC or DC relay output modules. These modules can switch high current (10A) loads without putting a load on your base power budget. Refer to the Terminal Blocks and Wiring Solutions section in this catalog for more information.

This logo is placed next to the I/O modules that are supported by the ZIPLink connection systems. See the I/O module specifications at the end of this section.



Power Consumed		
Device	5V(mA)	24V Auxiliary
Operator Interface		
C-more Micro-Graphic	210	0

Power Supplied			
Device	Price	5V(mA)	24V Auxiliary
Bases			
D2-03B-1	\$200.00	2600	300
D2-03BDC1-1	\$249.00	2600	None
D2-04B-1	\$217.00	2600	300
D2-04BDC1-1	\$274.00	2600	None
D2-06B-1	\$268.00	2600	300

Power Consumed		
Device	5V(mA)	24V Auxiliary
CPUs		
D2-262	336	0
DC Input Modules		
D2-08ND3	50	0
D2-16ND3-2	100	0
D2-32ND3	25	0
D2-32ND3-2	25	0
AC Input Modules		
D2-08NA-1	50	0
D2-08NA-2	100	0
D2-16NA	100	0
Input Simulator Module		
F2-08SIM	50	0
DC Output Modules		
D2-04TD1	60	20
D2-08TD1	100	0
D2-08TD2	100	0
D2-16TD1-2	200	80
D2-16TD2-2	200	0
F2-16TD1P	70	50
F2-16TD2P	70	50
D2-32TD1	350	0
D2-32TD2	350	0
AC Output Modules		
D2-08TA	250	0
F2-08TA	250	0
D2-12TA	350	0
Relay Output Modules		
D2-04TRS	250	0
D2-08TR	250	0
F2-08TR(S)	670	0
D2-12TR	450	0
Combination In/Out Module		
D2-08CDR	200	0

Power Supplied			
Device	Price	5V(mA)	24V Auxiliary
Bases			
D2-06BDC1-1	\$304.00	2600	None
D2-06BDC2-1	\$279.00	2600	300
D2-09B-1	\$333.00	2600	300
D2-09BDC1-1	\$360.00	2600	None
D2-09BDC2-1	\$359.00	2600	300

Power Consumed		
Device	5V(mA)	24V Auxiliary
Analog Modules		
F2-04AD-1	100	5
F2-04AD-2	110	5
F2-08AD-1	100	5
F2-08AD-2	100	5
F2-02DA-1	40	60 (note 1)
F2-02DA-2	40	60
F2-02DAS-1	100	50 / channel
F2-02DAS-2	100	60 / channel
F2-08DA-1	30	50 (note 1)
F2-08DA-2	60	140
F2-4AD2DA	60	80 (note 1)
F2-8AD4DA-1	35	100 (note 1)
F2-8AD4DA-2	35	80 (note 1)
F2-04RTD	90	0
F2-04THM	110	60
Specialty Modules		
D2-CTRINT	50*	0
D2-CM / D2-EM	100/130	0
H2-CTRIO2	275	0
D2-DCM	300	0
H2-EBC100	300	0
H2-ECOM100	300	0
F2-CP128	235	0
Remote I/O		
H2-ERM100, (-F)	300, (-F: 450)	0
Programming Devices		
D2-HPP	200	0
* Requires external 5VDC for outputs		
Note 1: Add an additional 20 mA per output loop.		



Dimensions and Installation

Understanding the installation requirements for your DL205 system will help ensure that the DL205 products operate within their environmental and electrical limits.

Plan for safety

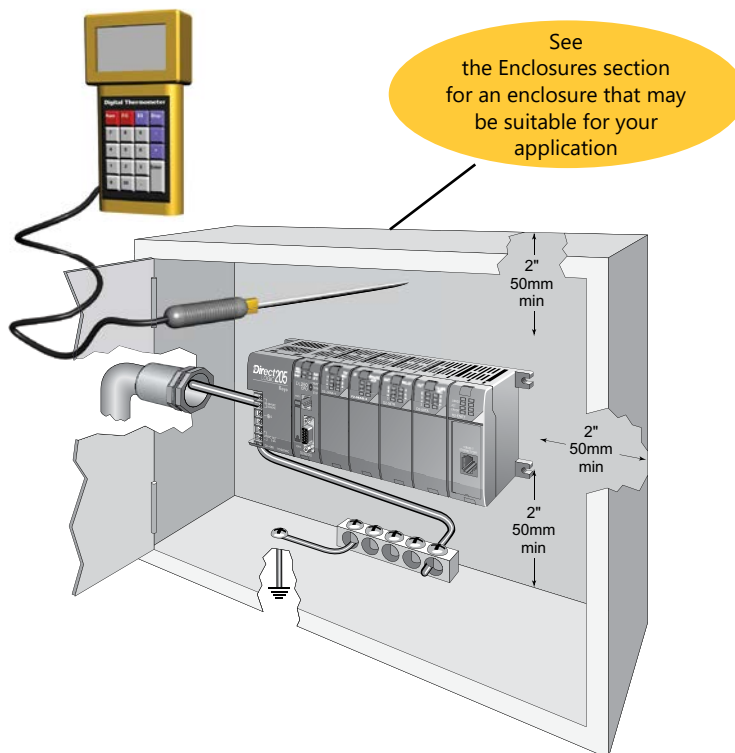
This catalog should never be used as a replacement for the user manual. The user manual, D2-USER-M (downloadable online), contains important safety information that must be followed. The system installation should comply with all appropriate electrical codes and standards.

Environmental specifications

The Environmental Specifications table at the right lists specifications that apply globally to the DL205 system (CPUs, bases, and I/O modules). Be sure that the DL205 system is operated within these environmental specifications.

Base dimensions and mounting

Use the diagrams below to make sure the DL205 system can be installed in your application. To ensure proper airflow for cooling purposes, DL205 bases must be mounted horizontally. It is important to check these dimensions against the conditions required for your application. For example, it is recommended that approximately 3" of space is left in front PLC surface for ease of access and cable clearances. Also, check the installation guidelines for recommended cabinet clearances.



Environmental Specification	Rating
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Ambient Operating Temperature	32°F to 131°F (0°C to 55°C)
Ambient Humidity	30% to 95% relative humidity (non-condensing)
Vibration Resistance	MIL STD 810C, Method 514.2
Shock Resistance	MIL STD 810C, Method 516.2
Noise Immunity	NEMA (IC33-304)
Atmosphere	No corrosive gases

Base	A	B	C	D
D2-03B-1, D2-03BDC1-1	6.77" 172mm	6.41" 163mm	5.8" 148mm	7.24" 184mm
D2-04B-1, D2-04BDC1-1	7.99" 203mm	7.63" 194mm	7.04" 179mm	8.46" 215mm
D2-06B-1, D2-06BDC1-1, D2-06BDC2-1	10.43" 265mm	10.07" 256mm	9.48" 241mm	10.90" 277mm
D2-09B-1, D2-09BDC1-1, D2-09BDC2-1	14.09" 358mm	13.74" 349mm	13.14" 334mm	14.56" 370mm

