# Errata Sheet

**This Errata Sheet contains corrections or changes made after the publication of this manual.**

| | | | |
|---|---|---|---|
| **Product Family**: | DL305 | **Date**: | 11.16.2023 |
| **Manual Number** | D3-USER-M | | |
| **Revision and Date** | 1st Edition, Rev. D; January 2010 | | |

### 11.16.2023

F3-08TAS-1 module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

### 06.21.2023

D3-08TD2, D3-08ND2, D3-16TA-2, and D3-08NA-2 modules, as well as D3-340-EE EPROM chips have been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

### 06.01.2023

D3-08TD1 module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

### 08.18.2022

D3-232-DCU communications module has been discontinued with no replacement. F3-16TA-2 I/O module has been discontinued. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

### 06.24.2022

D3-16TD2 Output module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

### 05.25.2022

D3-16TD1-1 Output module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

# Errata Sheet

**This Errata Sheet contains corrections or changes made after the publication of this manual.**

**04.08.2022**

D3-08NA-1 module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**03.04.2022**

03/2022 - D3-08TR module has been discontinued with no replacement. D3-05BDC & D3-10BDC have been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**01.27.2022**

01/2022 - D3-08TA-1 module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**12.2021**

12/2021 - D3-350 CPU module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**11.2021**

11/2021 - D3-340 CPU module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**10.21.2021**

10/2021 - D3-16NA module has been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**10.14.2021**

10/2021 - 10 slot base D3-10B-1, D3-EXCBL expansion I/O cable, and Handheld Programmer cable D3-HPCBL have been discontinued with no replacement. Consider BRX, Productivity, or CLICK PLC systems as upgrades.

**09.20.2021**

D3-08TA-2 and D3-05B-1 are discontinued as of 09/2021. Please consider Productivity, BRX, or CLICK PLC systems as a replacement.

**08.26.2021**

D3-330 is discontinued as of 08/2021. Please consider the D3-340 or D3-350 CPUs as a replacement.

**07.28.2021**

D3-HP is discontinued as of 03/2021. D3-HPP was discontinued 01/2018. Please consider the Productivity, BRX, or CLICK Series of PLC systems as a replacement.

**07.16.2021**

**Changes to Chapter 5 & 6.**

D3-16ND2-1 Discrete Input module has been discontinued as of 07/2021: Please consider the Productivity, BRX or CLICK Series of PLC systems as a replacement.

# Errata Sheet

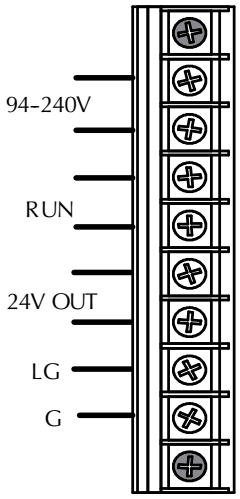
**This Errata Sheet contains corrections or changes made after the publication of this manual.**

## 08.2018

### Changes to Chapter 2. Installation and Safety Guidelines

Page 2-12. Base Wiring

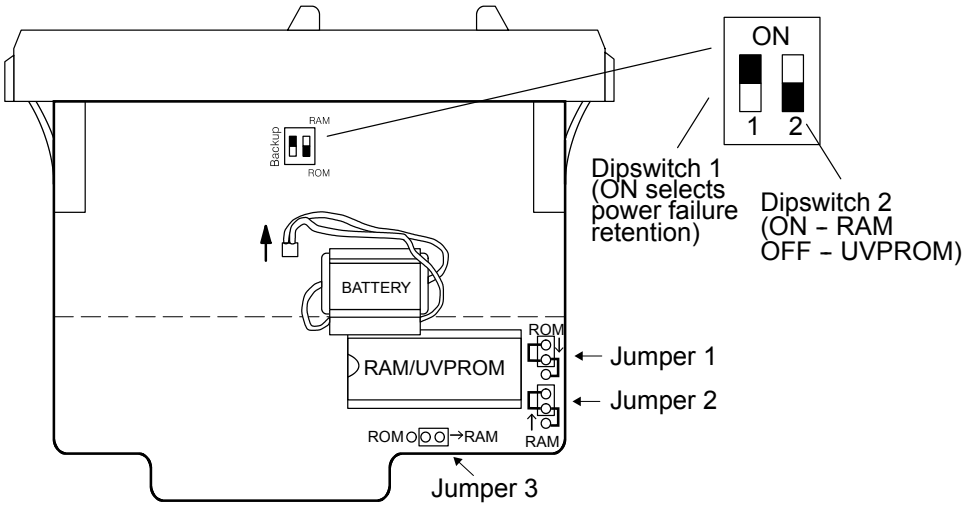
On newer 110-240 VAC bases, the terminal strip has been re-designed and does not have different terminals for 110VAC and 240VAC connections. If you have one of these re-designed bases the terminal strip will look like the graphic shown here.




### Changes to Chapter 3. DL330/DL330P/DL340 CPU Specifications

**Page 3-9. DL330/DL330P CPU Setup; Installing the UVPROM Option in the DL330/DL330P CPU.**

The drawing showing the jumpers is missing the silkscreen jumper lines and arrows for jumpers 1, 2, and 3. Refer to this drawing.



# Errata Sheet

**This Errata Sheet contains corrections or changes made after the publication of this manual.**

## 05.2018

### Changes to Chapter 3. DL330/DL330P/DL340 CPU Specifications

Page 3-14. Battery Backup:

Please revise the first WARNING on this page (right above the battery replacement drawings) as follows:

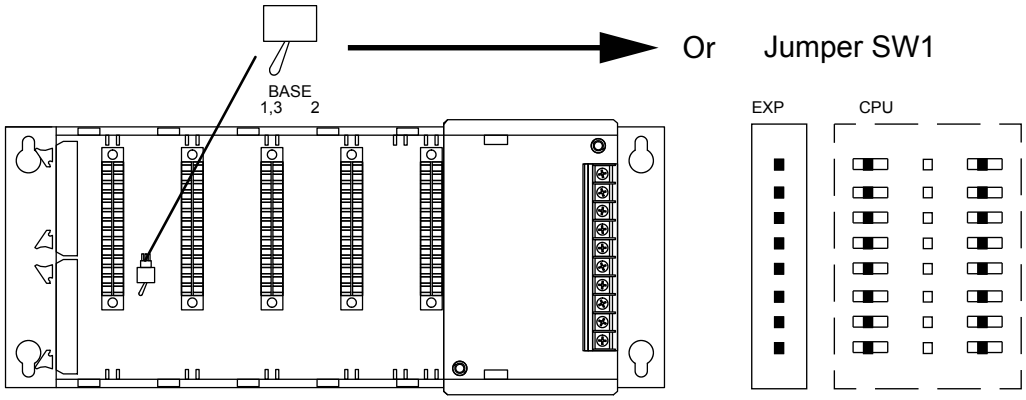
**WARNING: If the battery is not installed or connected to the PC board, the 330 CPU will NOT notify you of the error. Be sure the battery is in place and the connector is firmly seated before you install the CPU into the base.**

### Changes to Chapter 4. Bases, Expansion Bases, and I/O Configuration

Page 4-16. Setting the Base Switches; 5 Slot Bases:

Replace the drawing of the 5 slot base with this one. Newer 5 slot bases have jumper switch SW1 instead of the toggle switch to set whether the base is a local CPU base or an expansion base.

NOTE: Older bases have a toggle switch to set the base as the CPU local base, the first expansion base, or the second (last) espansion base. Newer bases have the jumper SW1 in place of the switch.




### Changes to Chapter 5. I/O Module Selection & Wiring Guidelines

Page 5-12. Fuse Protection

Replace the WARNING on this page with the following one:

**WARNING: Modules which have soldered-in fuses or non-replaceable fuses are non-repairable and should be replaced with new modules.**

# Errata Sheet

**This Errata Sheet contains corrections or changes made after the publication of this manual.**

## 05.2018, cont'd

**Changes to Chapter 11. Instruction Set; Timer, Counter, and Shift Register Instructions**

Page 11-22. Timer (TMR) DL330/DL340 Only

Page 11-23. Counter (CNT) DL330/DL340 Only

Add this NOTE to both of these pages:

**NOTE:** ***The counters and timers both time in Decimal and not in BCD. Presets for both are also interpreted as decimal data and not as BCD.***

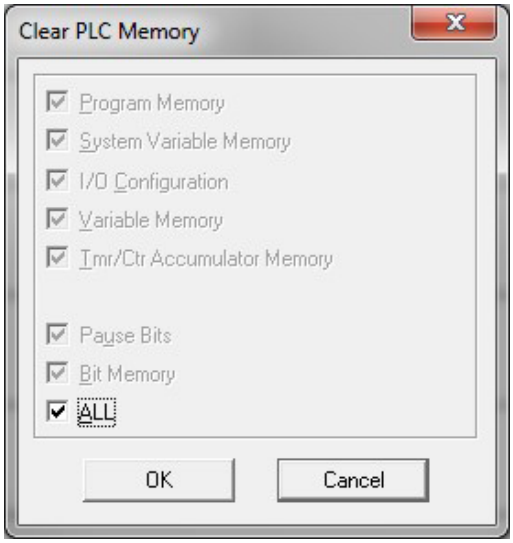
**Changes to Chapter 13. Maintenance and Troubleshooting**

Page 13-13. Add the following to the end of this chapter (right after END Instruction Placement):

**Reset the PLC to Factory Defaults**

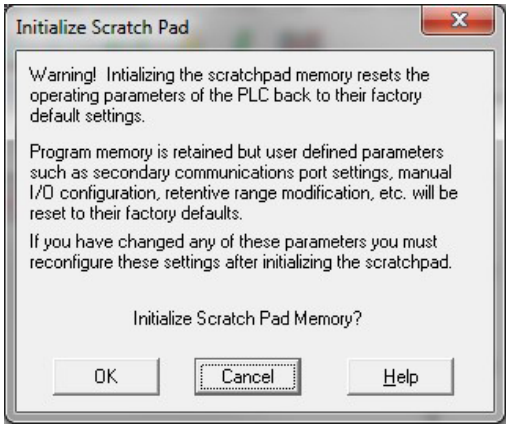
**NOTE:** ***Resetting to factory defaults will not clear any password stored in the PLC.***

Resetting a DirectLogic PLC to Factory Defaults is a two-step process. Be sure to have a verified backup of your program using "Save Project to Disk" from the File menu before performing this procedure. Please be aware that the program as well as any settings will be erased and not all settings are stored in the project. In particular you will need to write down any settings for Secondary Communications Ports and manually set the ports up after resetting the PLC to factory defaults.




Step 1 – While connected to the PLC with DirectSoft, go to the PLC menu and select; "Clear PLC Memory". Check the "ALL" box at the bottom of the list and press "OK".

Step 2 – While connected with DirectSoft, go the PLC menu and then to the "Setup" submenu and select "Initialize Scratch Pad". Press "Ok".




NOTE: All configurable communications ports will be reset to factory default state. If you are connected via Port 2 or another configurable port, you may be disconnected when this operation is complete.

**NOTE:** ***Retentive ranges will be reset to the factory settings.***

**NOTE:** ***Manually addressed IO will be reset to factory default settings.***

The PLC has now been reset to factory defaults and you can proceed to program the PLC.

# Errata Sheet

**This Errata Sheet contains corrections or changes made after the publication of this manual.**

## 06.13.2012

**Changes to Chapter 3. DL330/DL330P/DL340 CPU Specifications**

Page 3-3. CPU Specifications

DL340 CPUs DO NOT support overrides. In row 3, Supports Overrides, change the “Yes” in the DL340 column to “No”.

# 7

# Discrete Output Modules

In This Chapter. . . .


— Discrete Output Module Identification and Terminology
— Relay Arc Suppression - DC and AC Applications
— D3-08TD1, 24 VDC Output Module
— D3-08TD2, 24 VDC Output Module
— D3-16TD1-1, 24 VDC Output Module
— D3-16TD1-2, 24 VDC Output Module
— D3-16TD2, 24 VDC Output Module
— D3-04TAS, 110-220 VAC Output Module
— F3-08TAS, 250 VAC Isolated Output Module
— F3-08TAS-1, 125 VAC Isolated Output Module
— D3-08TA-1, 110-220 VAC Output Module
— D3-08TA-2, 110-220 VAC Output Module
— F3-16TA-2, 20-125 VAC Output Module
— D3-16TA-2, 110-220 VAC Output Module
— D3-08TR, Relay Output Module
— F3-08TRS-1, Relay Output Module
— F3-08TRS-2, Relay Output Module
— D3-16TR, Relay Output Module


D3-08TD2 and D3-16TA-2 retired 06/2023; D3-08TD1 retired 05/2023. Please consider BRX, Productivity, or CLICK PLC systems as a replacement PLC platform.

D3-16TD2 was retired 06/2022 Please consider BRXs, Productivity, or CLICK PLC systems as a replacement.

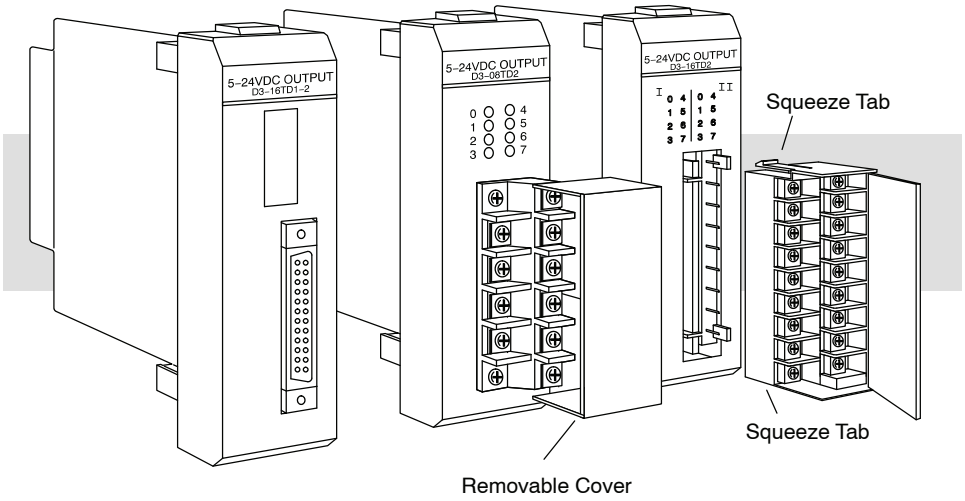
D3-08TR module has been retired as of 03/2022. Please consider BRX, Productivity or CLICK systems as a replacement PLC platform.

D3-08TA-2 module has been retired as of 09/2021. Please consider BRX, Productivity or CLICK systems as a replacement PLC platform.

# Discrete Output Module Identification and Terminology

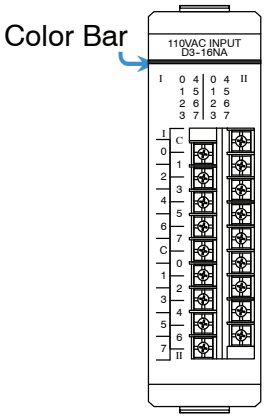
**Discrete Output Module Status Indicators**

This chapter contains I/O specification sheets for the DL305/FL305 discrete output modules. The following diagram shows the status indicator location for some of the most common discrete output modules.




**Color Coding of I/O Modules**

The DL305 family of I/O modules has a color coding scheme to help you identify whether the module is an input module, an output module or a special module. This is done through a color bar indicator located on the front of each module below the part number. The following color scheme is used.




| Module Type | Color Code |
|---|---|
| Discrete/Analog Output | Red |
| Discrete/Analog Input | Blue |
| Other | White |

**Output Modules Selection**

Your output module selection depends on the field devices used and system performance requirements. The output module specifications in this chapter list the information which is needed for choosing the correct module for a field device and to assure it meets the system requirements. The following list defines the specifications listed in this chapter.

| | |
|---|---|
| **Outputs Per Module** | Indicates number of output points per module and designates current sinking, current sourcing, or either. |
| **Commons Per Module** | Number of commons per module and their electrical characteristics. |
| **Operating Voltage** | The operating voltage range of the output circuit. |
| **Output Type** | The output circuit can be a transistor, a triac, or a relay. The NPN or PNP transistor outputs are normally used in low voltage or high speed DC applications. Triac outputs are used in AC voltage applications. The Form A or C relay outputs are normally used where a wide voltage range is needed. Relay output modules are capable of carrying more current than a transistor or a triac output and can pass AC or DC voltages. The disadvantage of a relay module is the internal power consumption and the relay life expectancy. |
| **Peak Voltage** | Maximum voltage the output circuit can control. |
| **AC Frequency** | AC modules are designed to operating within a specific frequency range. 60 Hz is the standard AC frequency in the U.S., 50 Hz is common in other countries. |
| **ON Voltage Drop** | The voltage between the output point and common during an active ON with a load. |
| **Maximum Current (Resistive)** | The maximum current for an output with a resistive load. |
| **Maximum Leakage Current** | The maximum current of the output circuit during an OFF state. |
| **Maximum Inrush Current** | The maximum current over a short period of time during the OFF to ON transition of a output point. It is greater than the normal ON state current and depends on the field device electrical characteristics. |
| **Minimum Load** | The minimum load across the output's circuit for the circuit to operate properly. |
| **Base Power Required** | Power from the base power supply is used by the DL305 output modules and varies between different modules. The guidelines for using module power is explained in the power budget configuration section in chapter 4. |
| **OFF to ON Response Time** | The processing time the module requires to transition from an OFF to ON state. |
| **ON to OFF Response Time** | The processing time the module requires to transition from an ON to OFF state. |
| **Terminal Type** | Indicates whether the terminal type is a removable or non-removable connector or terminal. |
| **Status Indicators** | LEDs indicate the ON/OFF status of an input point. These LEDs are electrically located on either the logic side or the field device side of the output circuit. |
| **Fuses** | Indicates the current rating of the replaceable or non-replaceable fuse(s). |
| **Relay Life** | Amount of closures typical for a relay point before failure. |
| **Weight** | Indicates the weight of the module. |

# Relay Arc Suppression - DC and AC Applications

**FL305 High Current Relay Output Module Arc Suppression**

This application note describes the addition of external contact protection to high current isolated relay output modules. It supplements the wiring information for the F3-08TRS-1 and F3-08TRS-2 relay output modules.

Adding external contact protection may extend a relays life beyond the number of operations listed. High current inductive loads such as clutches, brakes, motors, direct acting solenoid valves, and motor starters will benefit the most from external contact protection.



**Resistor and Capacitor Selection**

$C\ (\mu F) = I^2 / 10$

$R\ (\Omega) = V / 10\ I^x$ where $x = (1 + 50 / E)$

Use peak AC values for I and V, see "Peak Voltage and Current" below.
Where I = Amperes of load current immediately prior to opening of contacts.
Where E = Source voltage immediately prior to closing of contacts.

R minimum = 0.5 Ω, 1/2 W

C minimum = 0.001 μF, the voltage rating of C must be ≥ E

**Resistor Tolerance**

For E < 70V, R may be 3 times indicated value.
For 70V < E < 100V, R may be ± 50% indicated value.
For 100V < E < 150V,R may be ± 10% indicated value.
For E > 150V, R may be ± 5% indicated value.

**Peak Voltage and Current**

The following equations can be used to determine $I_{peak}$ and $V_{peak}$:

$I_{peak} = I_{rms} / .707$ Alternating Current

$V_{peak} = V_{rms} / .707$

$I_{peak} = I_{ave} / .636$ DC Rectified Alternating Current

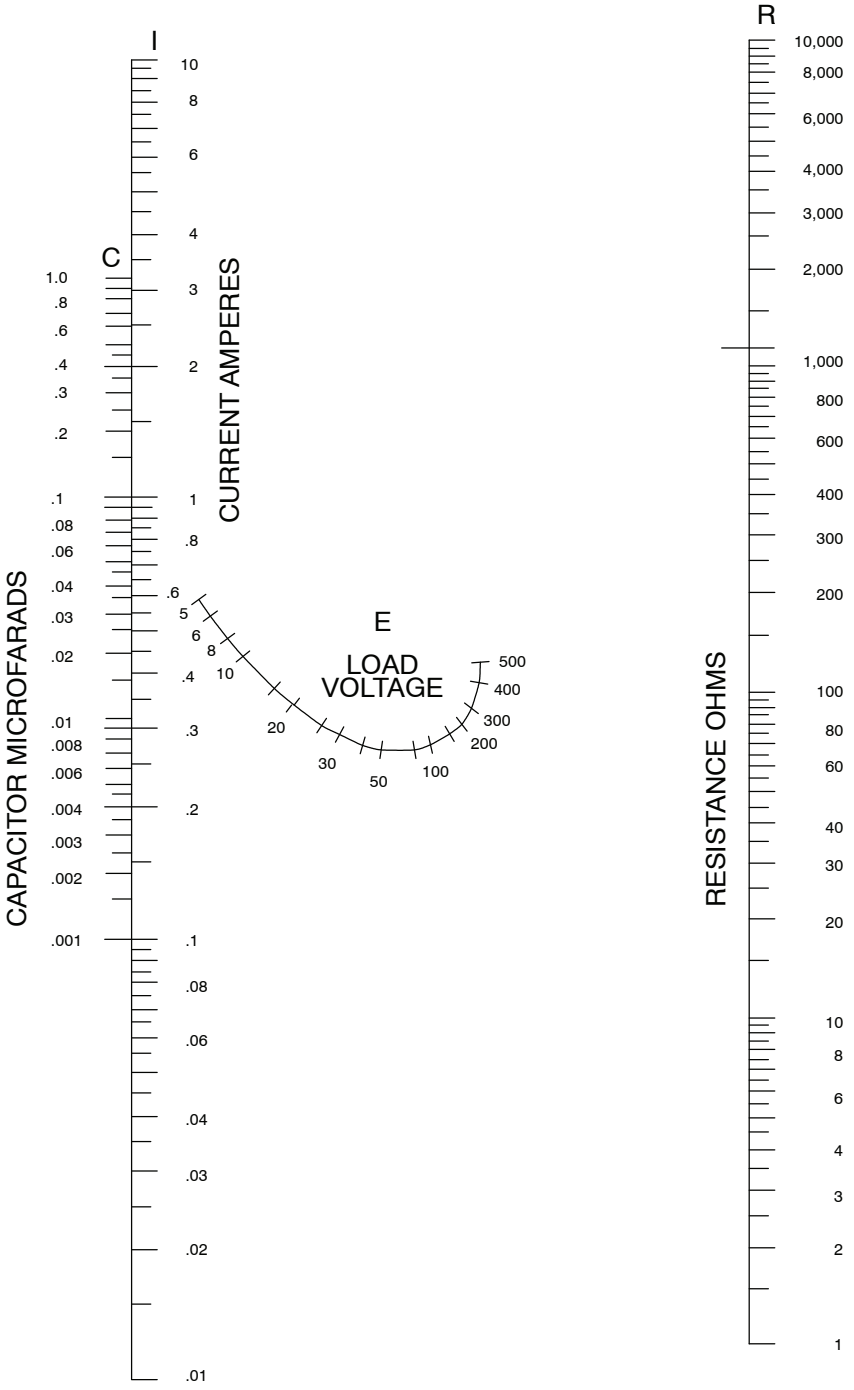
**Adding Contact Protection**

If the contact is switching a DC inductive load, add a diode across the load as near to load coil as possible. Add the RC network across the relay contacts as close to the relay as possible.

## Resistor and Capacitor Nomogram

The nomogram shown below affords a convenient method of selecting the proper contact protection for P & B relays used in F3-08TRS-1 and F3-08TRS-2 modules.
Example: Use a current (1) of 1.0 ampere and a voltage (E) of 50 volts.

Capacitance (C ) in microfarads is found directly on the left side scale, opposite 1.0 amperes as 0.1. Resistance (R) in ohms is obtained using a straight edge. Locate 1.0 amperes (I) on the left side scale and 50 volts (E) on the center scale. Place the straightedge on these points. The junction of the straight edge and the right side determines R. In this example R is equal to 5.0 ohms.

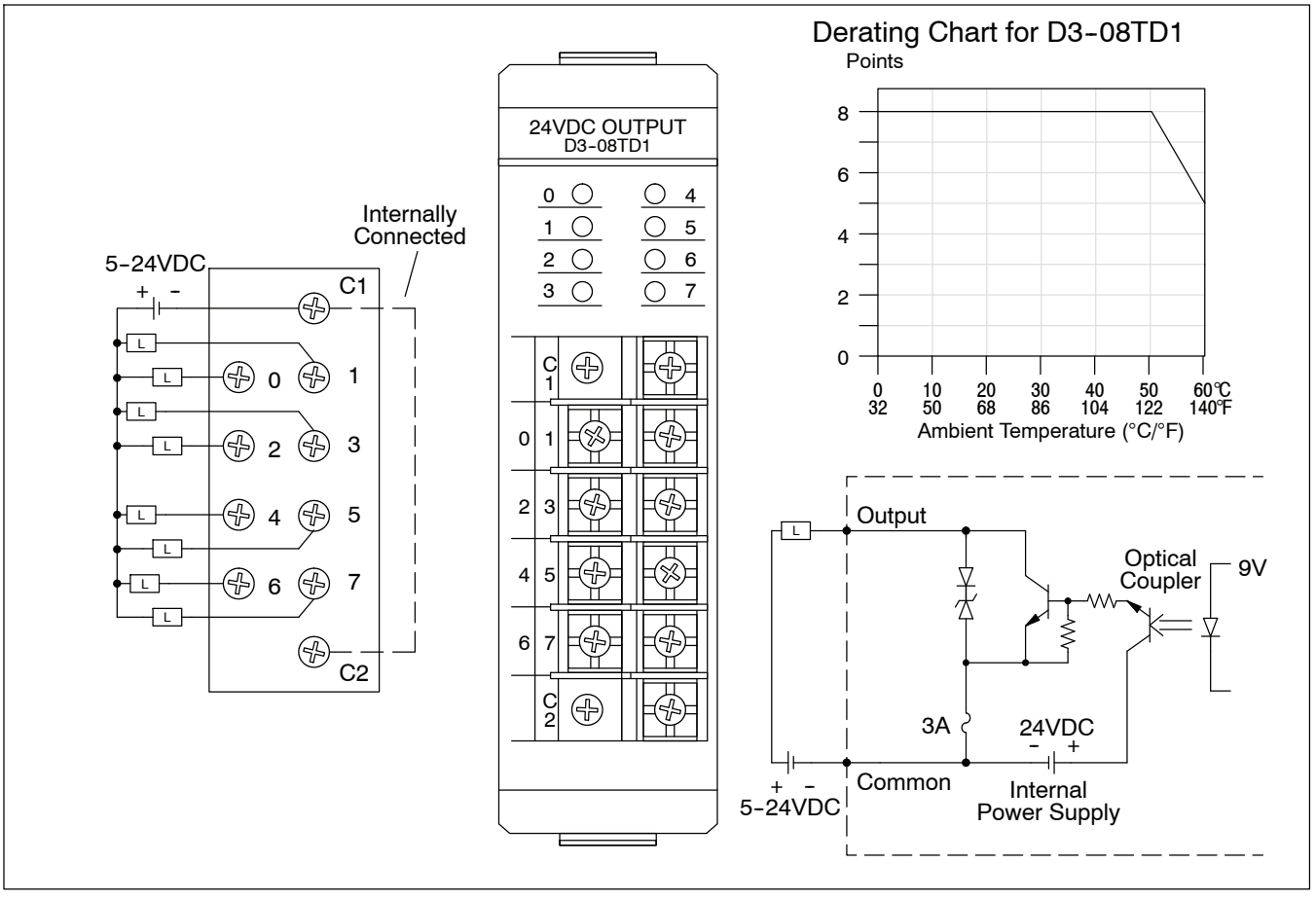



(1) $C = 1^2 / 10$ microfarads For DC. For AC, use peak values
(2) $R = E / 10 I^x$ ohms Where $x = (1 + 50/E)$

# D3-08TD1, 24 VDC Output Module

| | |
|---|---|
| Outputs per module | 8 (current sinking) |
| Commons per module | 2(internally connected) |
| Operating voltage | 5-24VDC |
| Output type | NPN<br>(open collector) |
| Peak voltage | 45VDC |
| AC frequency | N/A |
| ON voltage drop | 0.8V @ 0.5A |
| Max current | 0.5A / point<br>1.8 / common |
| Max leakage current | 0.1 mA @ 40VDC |
| Max inrush current | 3A / 20ms<br>1A / 100ms |

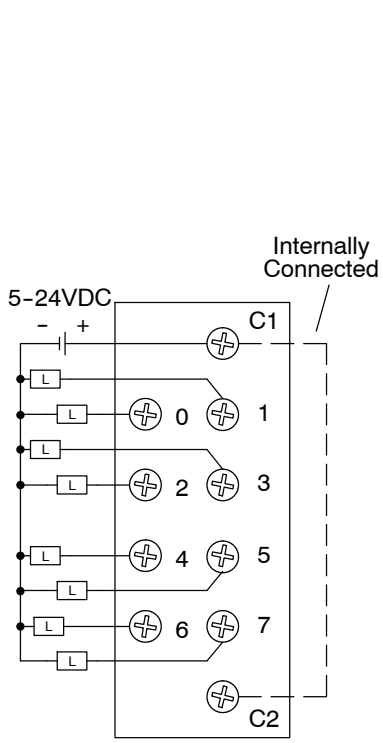
| | |
|---|---|
| Minimum load | 1 mA |
| Base power required | 9V 20 mA Max<br>24V 3mA/pt.<br>(24mA Max) |
| OFF to ON response | 0.1 ms |
| ON to OFF response | 0.1 ms |
| Terminal type | Non-removable |
| Status indicators | Logic Side |
| Weight | 4.2 oz. (120 g) |
| Fuses | (2)<br>One 3A per common<br>Non-replaceable |

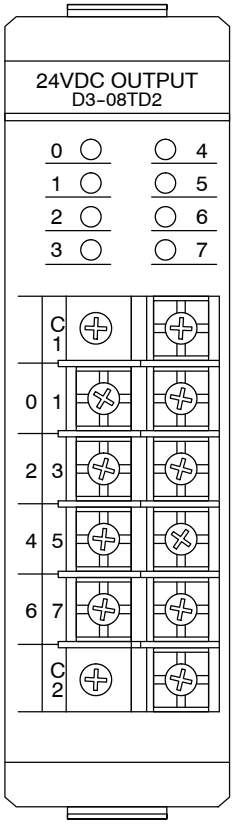


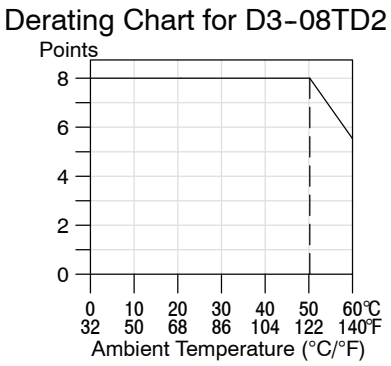
# D3-08TD2, 24 VDC Output Module D3-08TD2 Retired 06/2023

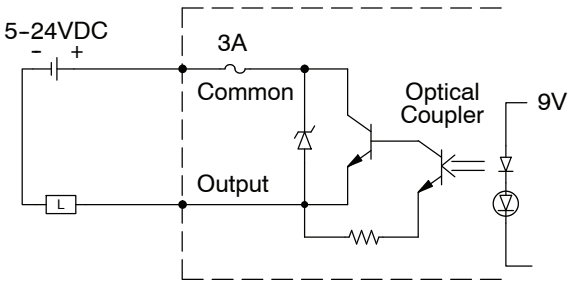
| | |
|---|---|
| Outputs per module | 8 (current sourcing) |
| Commons per module | 2 (internally connected) |
| Operating voltage | 5-24VDC |
| Output type | NPN Transistor (emitter follower) |
| Peak voltage | 40VDC |
| AC frequency | N/A |
| ON voltage drop | 1V @ 0.5A |
| Max current | 0.5A / point<br>1.8A/ common |
| Max leakage current | 0.1 mA @ 24VDC |
| Max inrush current | 3A / 20ms<br>1A / 100ms |

| | |
|---|---|
| Minimum load | 1 mA |
| Base power required | 9V 30 mA Max<br>24V N/A |
| OFF to ON response | 0.1 ms |
| ON to OFF response | 0.1 ms |
| Terminal type | Non-removable |
| Status indicators | Logic Side |
| Weight | 4.2 oz. (120 g) |
| Fuses | (2)<br>One 3A per common<br>Non-replaceable |
| | |
| | |



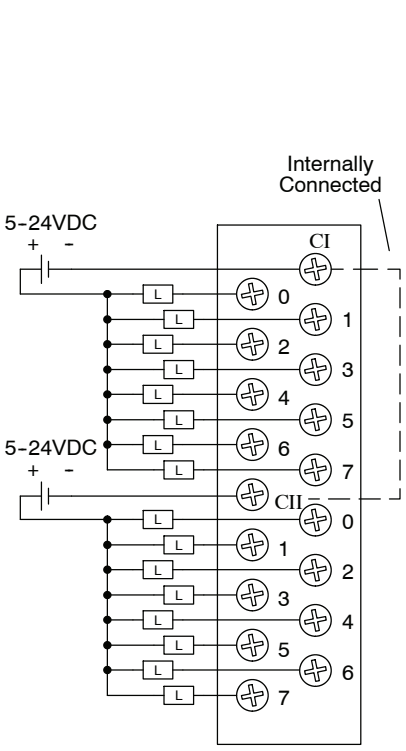



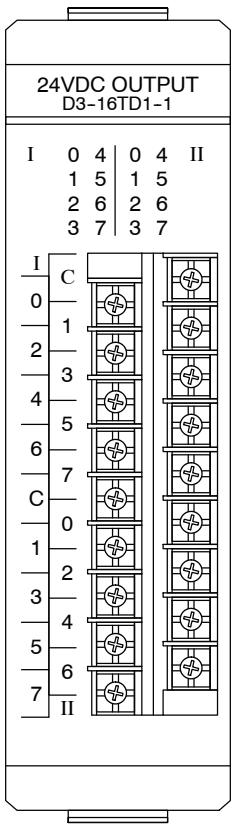



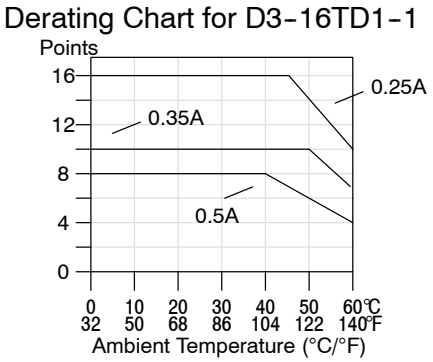



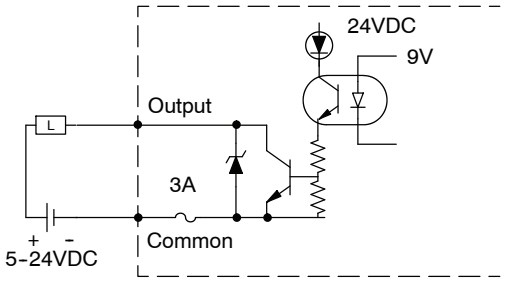
# D3-16TD1-1, 24 VDC Output Module

| | | | | |
|---|---|---|---|---|
| Outputs per module | 16 (current sinking) | | Minimum load | 1 mA |
| Commons per module | 2 (internally connected) | | Base power required | 9V (40 mA Max)<br>3mA+2.3mA/ON pt.<br>24V 6 mA/ON pt.<br>(96 mA Max) |
| Operating voltage | 5-24VDC | | | |
| Output type | NPN transistor<br>(open collector) | | | |
| Peak voltage | 45VDC | | OFF to ON response | 0.1 ms |
| AC frequency | N/A | | ON to OFF response | 0.1 ms |
| ON voltage drop | 2V @ 0.5A | | Terminal type | Removable |
| Max current | 0.5A/ point<br>2A/ common | | Status indicators | Logic Side |
| | | | Weight | 5.6 oz. (160 g) |
| Max leakage current | 0.1mA @ 40VDC | | Fuses | (2)<br>One 3A per common<br>Non-replaceable |
| Max inrush current | 3A / 20 ms<br>1A / 100 ms | | | |



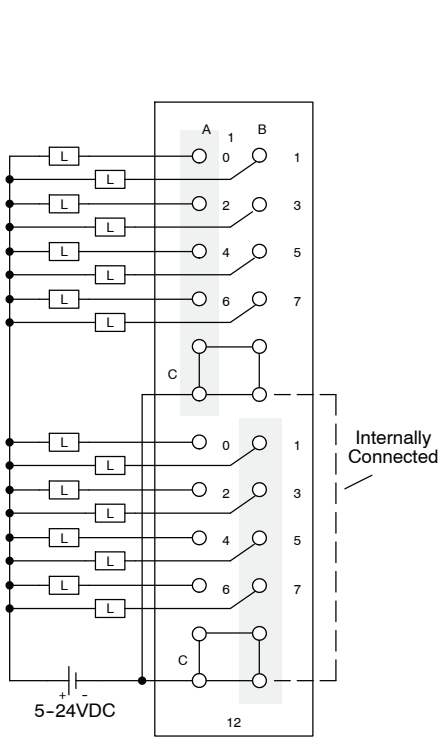



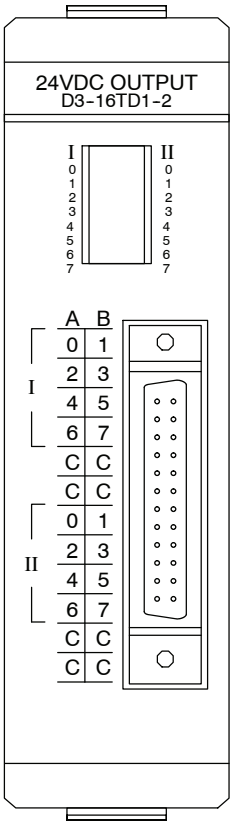



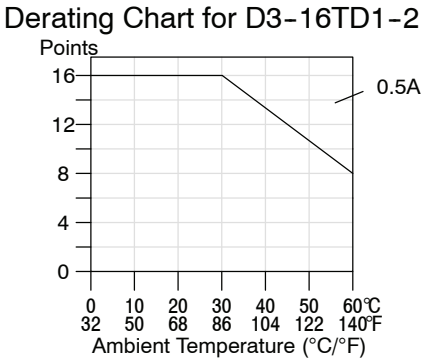
# D3-16TD1-2, 24 VDC Output Module

| | |
|---|---|
| Outputs per module | 16 (current sinking) |
| Commons per module | 4 (internally connected) |
| Operating voltage | 5-24VDC |
| Output type | NPN transistor (open collector) |
| Peak voltage | 45VDC |
| AC frequency | N/A |
| ON voltage drop | 2.0V @ 0.5A |
| Max current | 0.5A / point<br>1.8A common |
| Max leakage current | 0.3 mA @ 40VDC |
| Max inrush current | 3A / 20ms<br>1A / 100ms |

| | |
|---|---|
| Minimum load | 1 mA |
| Base power required | 9V (40mA Max)<br>3mA+2.3mA/ON pt.<br>24V 6mA/ON pt.<br>(96mA Max) |
| OFF to ON response | 0.1 ms |
| ON to OFF response | 0.1 ms |
| Terminal type | Removable connector |
| Status indicators | Logic Side |
| Weight | 5.6 oz. (160 g) |
| Fuses | (4)<br>One 3A per common<br>Non-replaceable |

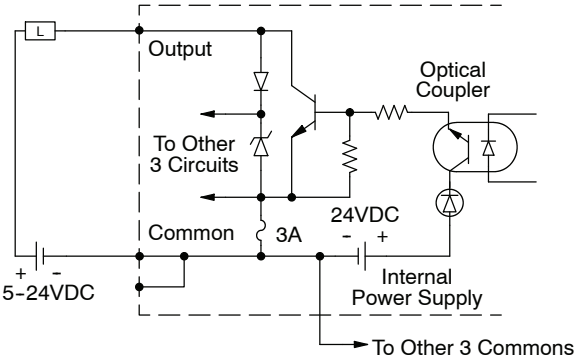



Output 0, 2, 4, 6 (FUSED with 3A on Common)
Same circuit as shown below

Output 1, 3, 5, 7 (FUSED with 3A on Common)
Same circuit as shown below

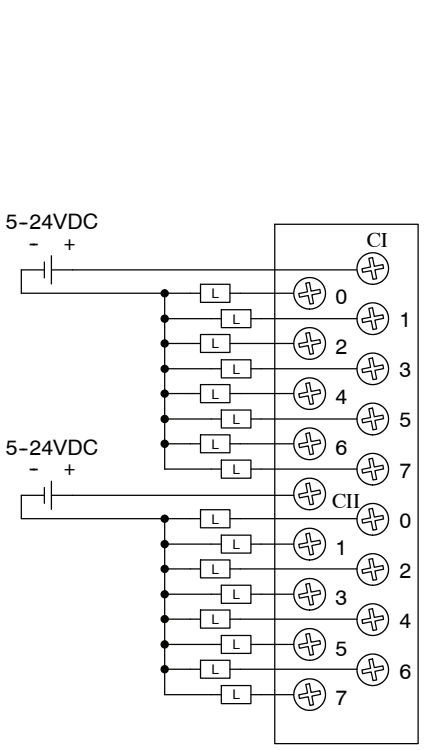


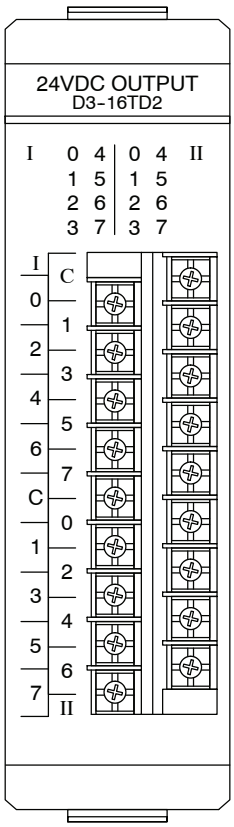
# D3-16TD2, 24 VDC Output Module

D3-16TD2 was retired 06/2022Please consider BRXs, Productivity, or CLICK PLC systems as a replacement.

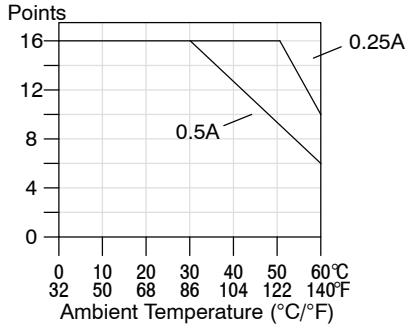
| | |
|---|---|
| Outputs per module | 16 (current sourcing) |
| Commons per module | 2 (isolated) |
| Operating voltage | 5-24VDC |
| Output type | NPN transistor (emitter follower) |
| Peak voltage | 40VDC |
| AC frequency | N/A |
| ON voltage drop | 1.5V @ 0.5A |
| Max current | 0.5A / point<br>3A common |
| Max leakage current | 0.01 mA @ 40VDC |
| Max inrush current | 3A / 20ms<br>1A / 100ms |

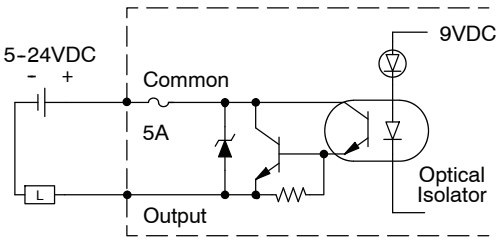
| | |
|---|---|
| Minimum load | 1 mA |
| Base power required | 9V 7.5 mA/ON pt. (180 mA Max)<br>24V N/A |
| OFF to ON response | 0.1 ms |
| ON to OFF response | 1 ms |
| Terminal type | Removable |
| Status indicators | Logic Side |
| Weight | 7.1 oz. (210 g) |
| Fuses | (2)<br>One 5A per common<br>Non-replaceable |



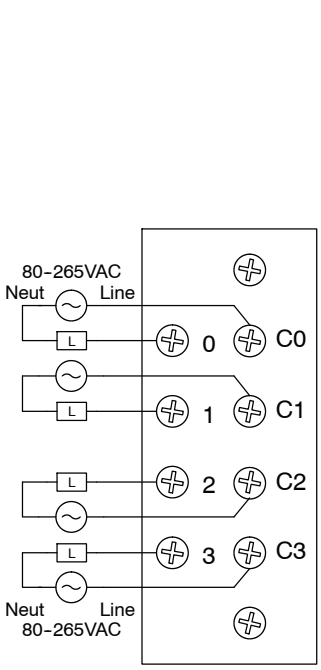

Derating Chart for D3-16TD2

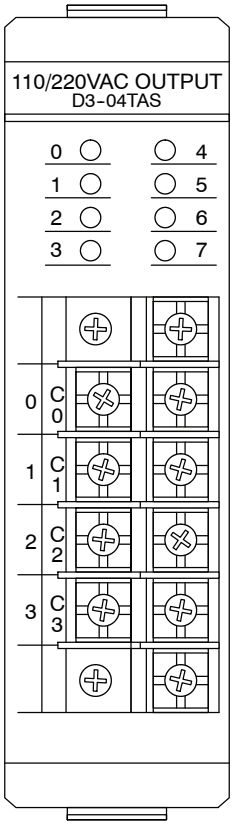


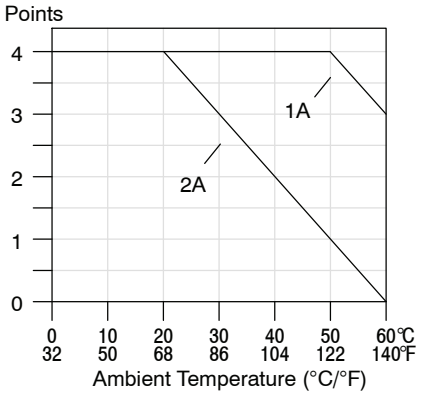
# D3-04TAS, 110-220 VAC Output Module

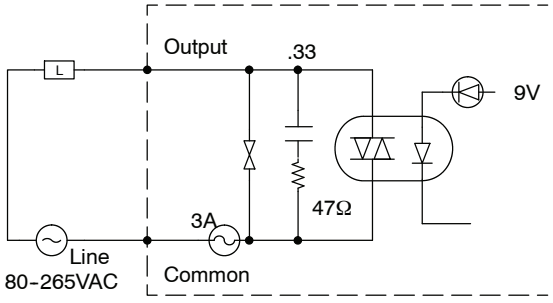
| | | | | |
|---|---|---|---|---|
| Outputs per module | 4 | | Minimum load | 10 mA |
| Commons per module | 4 (isolated) | | Base power required | 9V 12 mA Max<br>24V N/A |
| Operating voltage | 80-265VAC | | OFF to ON response | 1 ms Max |
| Output type | Triac | | ON to OFF response | 10 ms Max |
| Peak voltage | 265 VAC | | Terminal type | Non-removable |
| AC frequency | 47-63 Hz | | Status indicators | Logic Side |
| ON voltage drop | 1.5 VAC @ 2A | | Weight | 6.4 oz. (180 g) |
| Max current | 2A / point<br>2A / common | | Fuses | (4)<br>One 3A per common<br>User replaceable |
| Max leakage current | 7 mA @ 220VAC<br>3.5 mA @ 110VAC | | | |
| Max inrush current | 20A for 16 ms<br>10A for 100 ms | | | |




Derating Chart for D3-04TAS

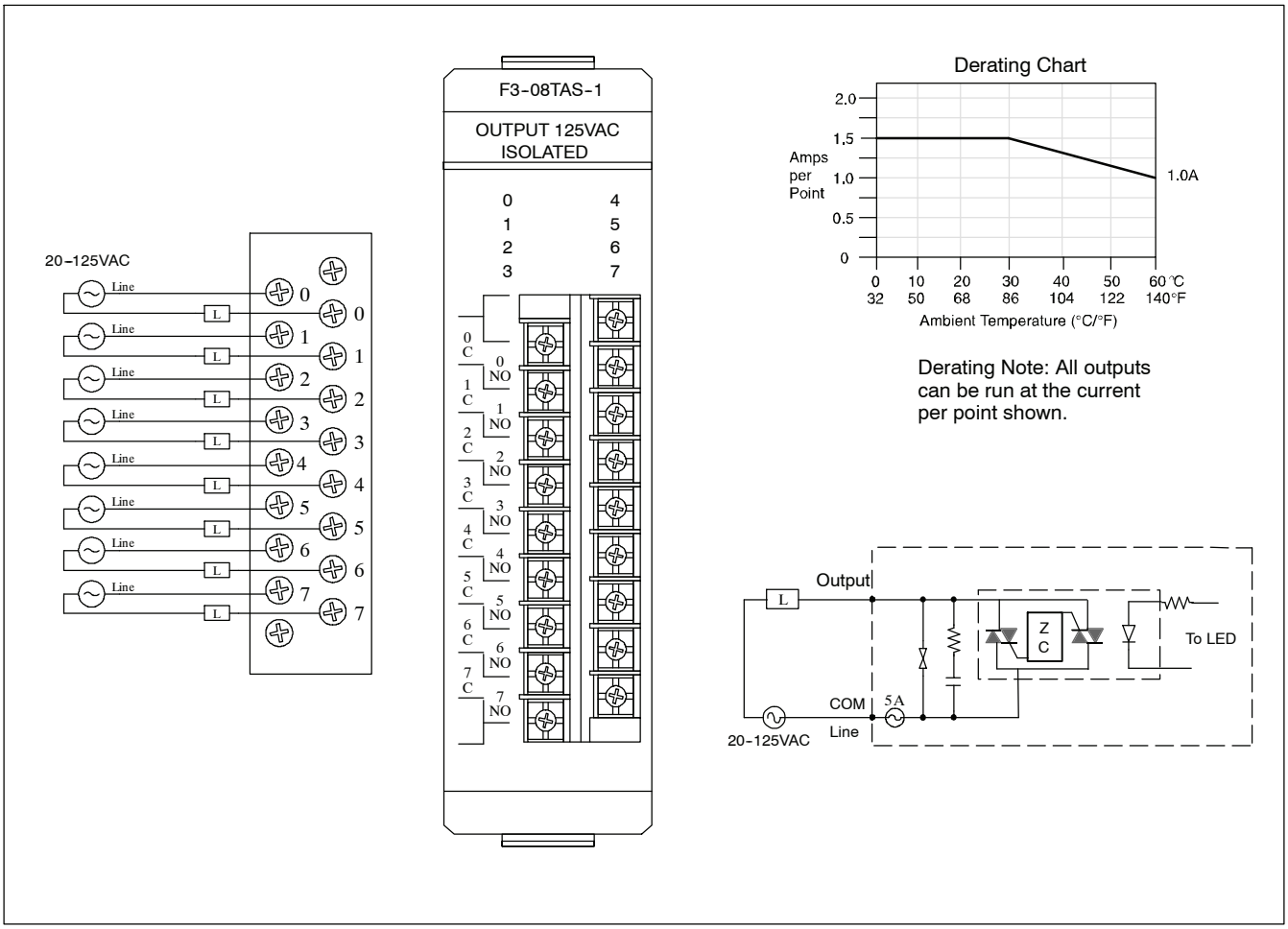


# F3-08TAS, 250 VAC Isolated Output Module

| | | | | |
|---|---|---|---|---|
| Outputs per module | 8 (500V point-to-point isolation) | | Base power required | 9V 10mA / ON pt.<br>80mA Max.<br>24V N/A |
| Commons per module | 8 (isolated) | | | |
| Operating voltage | 12–125 VAC<br>125–250 VAC requires external fuses | | OFF to ON response | 8 ms Max |
| | | | ON to OFF response | 8 ms Max |
| Output type | SSR Array (TRIAC) | | Terminal type | Removable |
| Peak voltage | 400 VAC | | Status indicators | Logic Side |
| AC frequency | 47 – 440 Hz | | Weight | 6.3 oz. (177g) |
| ON voltage drop | 1 VAC @ 1A | | Fuses<br>BK/PCE-5 Bussman<br>(One spare fuse included) | (8) fast blow<br>One 5A (125V fast blow) per each circuit<br>User replaceable |
| Max current | 1A / point | | | |
| Max leakage current | 10 μA @ 240 VAC | | | |
| Max inrush current* | 20A for 16 ms<br>3A for 100 ms | | | |
| Minimum load | 0.5 mA | | | |

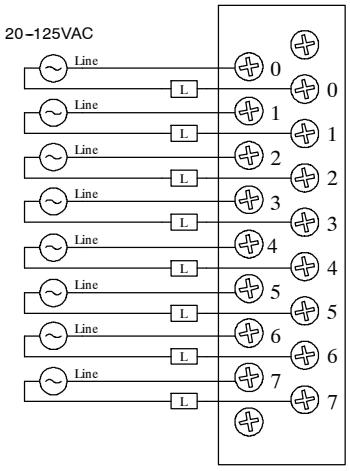


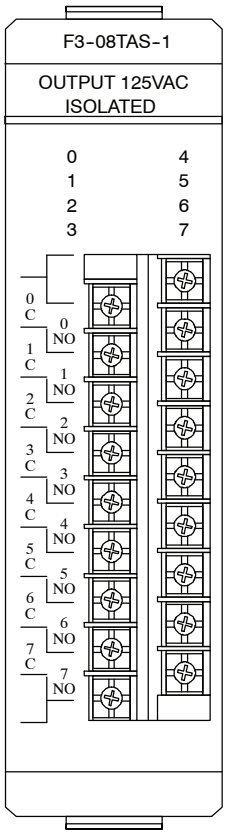


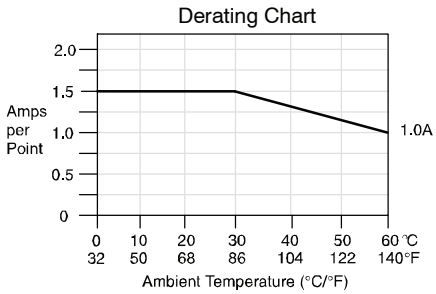
# F3-08TAS-1, 125 VAC Isolated Output Module

| | |
|---|---|
| Outputs per module | 8 (1500V point-to-point isolation) |
| Commons per module | 8 (isolated) |
| Operating voltage | 20–125VAC |
| Output type | SSR (TRIAC with zero cross-over) |
| Peak voltage | 140VAC |
| AC frequency | 47 – 63 Hz |
| ON voltage drop | 1.6V(rms) @ 1.5A |
| Max current | 1.5A/point |
| Max leakage current | 0.7mA (rms) |
| Max inrush current* | 15A for 20 ms<br>8A for 100 ms |
| Minimum load | 50mA |

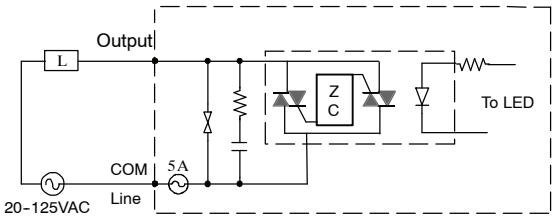
| | |
|---|---|
| Base power required | 9V 25mA/ON pt. (200mA Max), 24V N/A |
| OFF to ON response | 1 ms Max |
| ON to OFF response | 9 ms Max |
| Terminal type | Removable |
| Status indicators | Logic Side |
| Weight | 6.3 oz. (177g) |
| Fuses | 8 (1 per common)<br>5A, 125V fast blow<br>Order D3-FUSE-4<br>(5 per pack) |
| | |
| | |



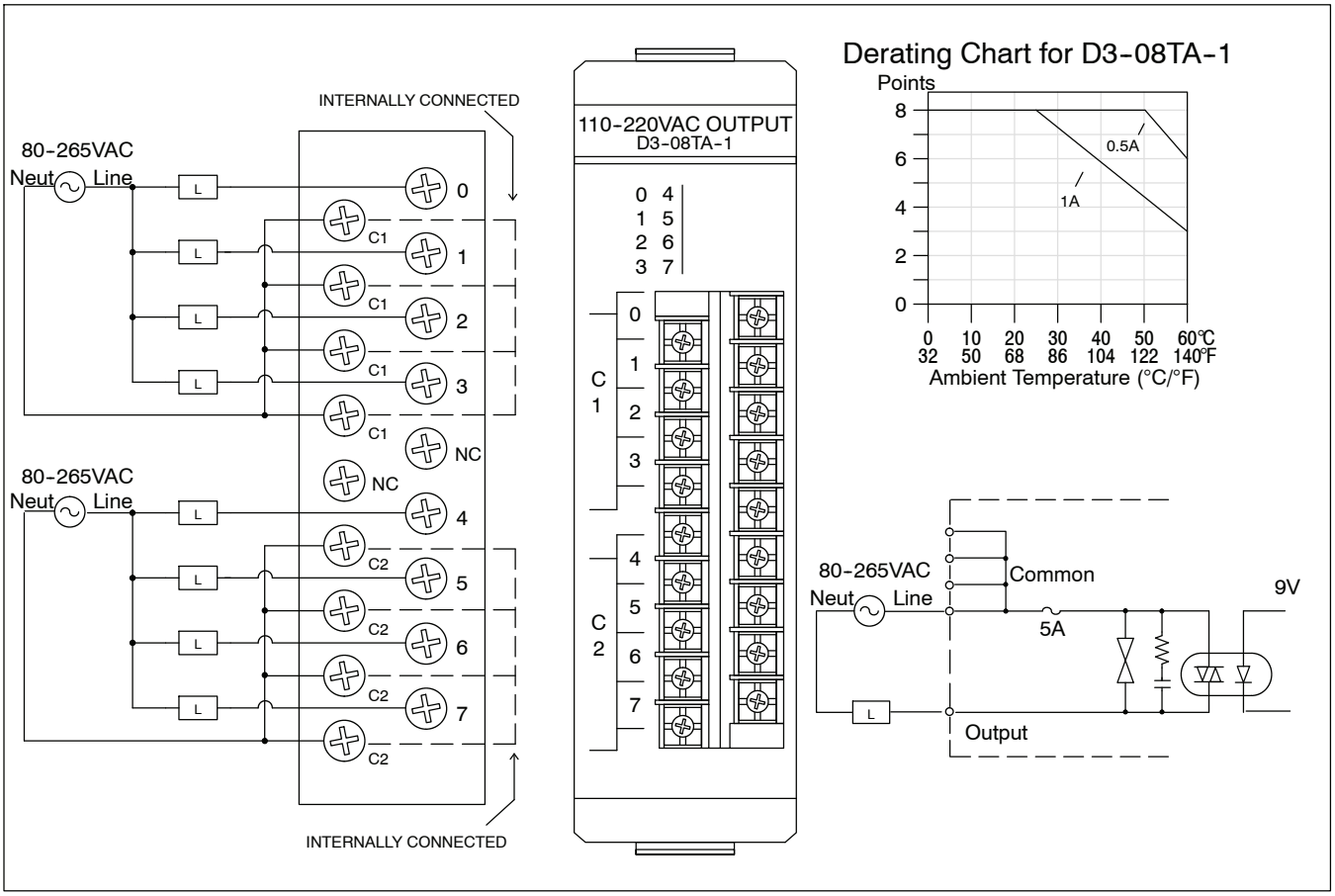




Derating Note: All outputs can be run at the current per point shown.



# D3-08TA-1, 110-220 VAC Output Module

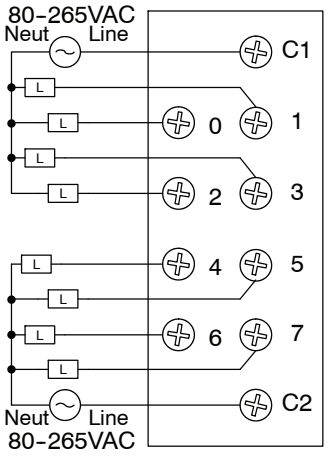
| | | | | |
|---|---|---|---|---|
| Outputs per module | 8 | | Minimum load | 25 mA |
| Commons per module | 2 (isolated) | | Base power required | 9V 20mA/ON pt.<br>(160 mA Max)<br>24V N/A |
| Operating voltage | 80-265VAC | | | |
| Output type | Triac | | | |
| Peak voltage | 265VAC | | OFF to ON response | 1 ms Max |
| AC frequency | 47-63 Hz | | ON to OFF response | 8.33 ms Max |
| ON voltage drop | 1.5 VAC @ 1A | | Terminal type | Removable |
| Max current | 1A / point<br>3A / common | | Status indicators | Logic Side |
| | | | Weight | 7.4 oz. (210 g) |
| Max leakage current | 1.2 mA @ 220VAC<br>0.52 mA @ 110VAC | | Fuses | (2)<br>One 5A per common<br>Non-replaceable |
| Max inrush current | 10A for 16 ms<br>5A for 100 ms | | | |

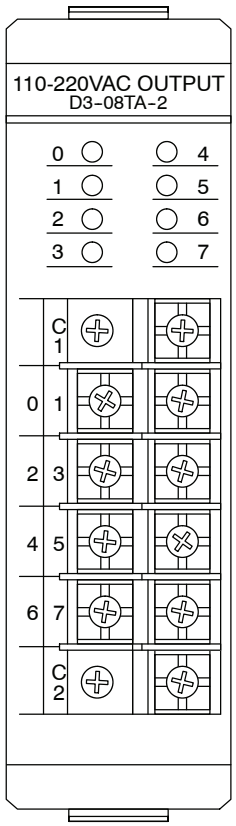


# D3-08TA-2, 110-220 VAC Output Module

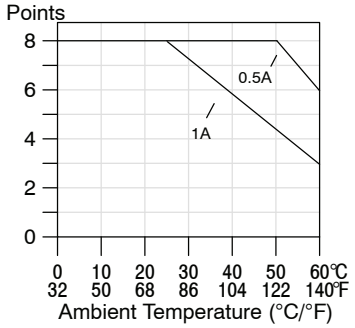
| | |
|---|---|
| Outputs per module | 8 |
| Commons per module | 2 (isolated) |
| Operating voltage | 80-265VAC |
| Output type | Triac |
| Peak voltage | 265VAC |
| AC frequency | 47-63 Hz |
| ON voltage drop | 1.5 VAC @ 1A |
| Max current | 1A / point<br>3A / common |
| Max leakage current | 1.2 mA @ 220VAC<br>0.52 mA @ 110VAC |
| Max inrush current | 10A for 16 ms<br>5A for 100 ms |
| Minimum load | 25 mA |

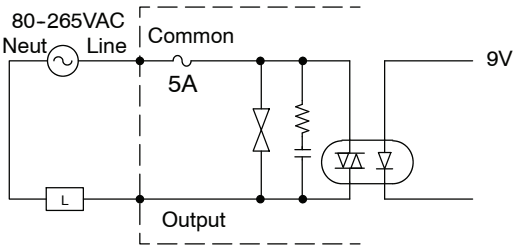
| | |
|---|---|
| Base power required | 9V 20mA/ON pt.<br>(160 mA Max)<br>24V N/A |
| OFF to ON response | 1 ms Max |
| ON to OFF response | 8.33 ms Max |
| Terminal type | Non-removable |
| Status indicators | Logic Side |
| Weight | 6.4 oz. (180 g) |
| Fuses | (2)<br>One 5A per common<br>Non-replaceable |
| | |
| | |
| | |
| | |




Derating Chart for D3-08TA-2

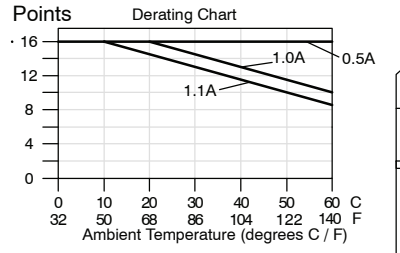


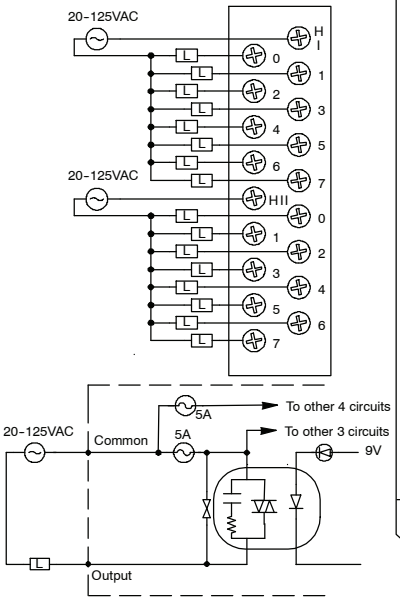
# F3-16TA-2, 20-125 VAC Output Module D3-16TA-2 Retired 06/2023

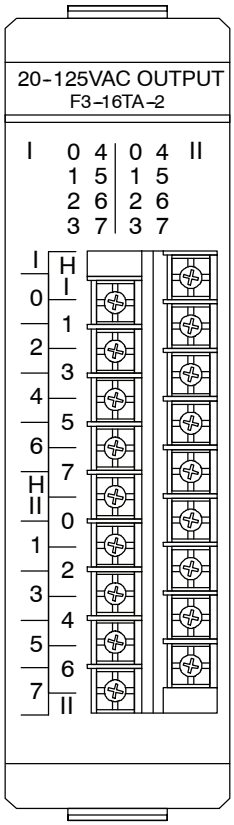
| | |
|---|---|
| Outputs per module | 16 |
| Commons per module | 2 (isolated) |
| Operating voltage | 20 – 125VAC |
| Output type | SSR Array (TRIAC) |
| Peak voltage | 140 VAC |
| AC frequency | 47 – 63Hz |
| ON voltage drop | 1.1VAC @ 1.1A |
| Max current | 1.1A / point |
| Max leakage current | 0.7mA @ 125VAC |
| Max inrush current* | 15A for 20ms<br>8A for 100ms |

| | |
|---|---|
| Minimum load | 50mA |
| Base power required | 9V 14mA / ON pt.<br>250mA Max.<br>24V N/A |
| OFF to ON response | 8ms Max. |
| ON to OFF response | 8 ms Max. |
| Terminal type | Removable |
| Status indicators | Logic Side |
| Weight | 7.7oz. (218g) |
| Fuses<br>(One spare fuse included) | 4 (One 5A 125V fast blow per each group of four outputs)<br>Order D3-FUSE-4<br>(5 per pack) |




*Fuse blows at 20 Amp surge
Motor starters up to and including a NEMA size 3 can be used with this module.

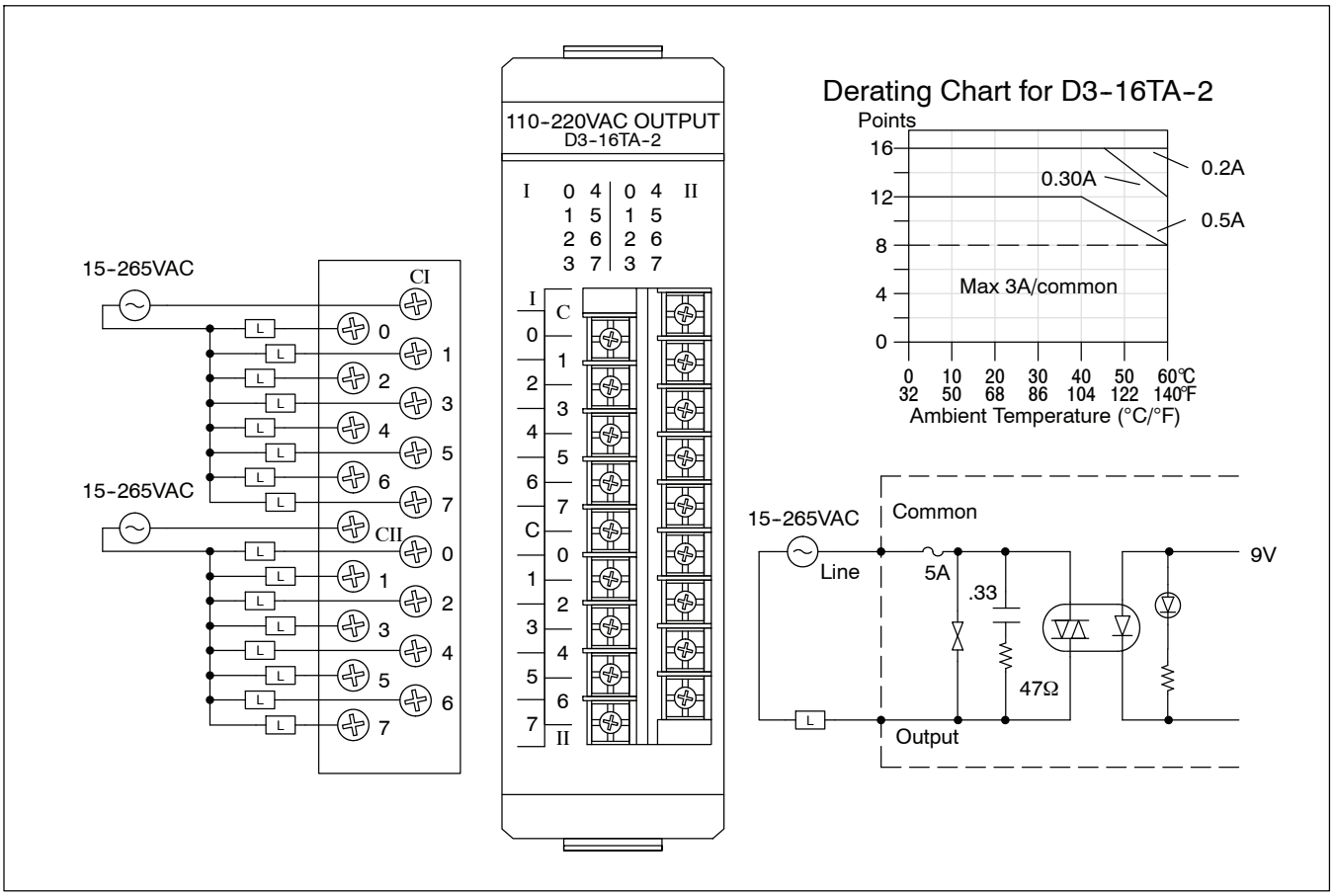


# D3-16TA-2, 110-220 VAC Output Module

| | | | | |
|---|---|---|---|---|
| Outputs per module | 16 | | Minimum load | 10 mA @ 15VAC |
| Commons per module | 2 (isolated) | | Base power required * | 9V 25mA Max /ON pt.<br>400 mA Max<br>24V N/A |
| Operating voltage | 15-265 VAC | | OFF to ON response | 1 ms Max |
| Output type | Triac | | ON to OFF response | 9 ms Max |
| Peak voltage | 265 VAC | | Terminal type | Removable |
| AC frequency | 47-63 Hz | | Status indicators | Logic Side |
| ON voltage drop | 1.5 VAC @ 0.5A | | Weight | 7.2 0z. (210 g) |
| Max current | 0.5A / point<br>3A / common<br>6A / per module | | Fuses | (2)<br>One 5A per common<br>Non-replaceable |
| Max leakage current | 4 mA @ 265 VAC | | | |
| Max inrush current | 10A for 10 ms<br>5A for 100 ms | | | |

* 9V typical values 17mA/ON pt., 272 mA total

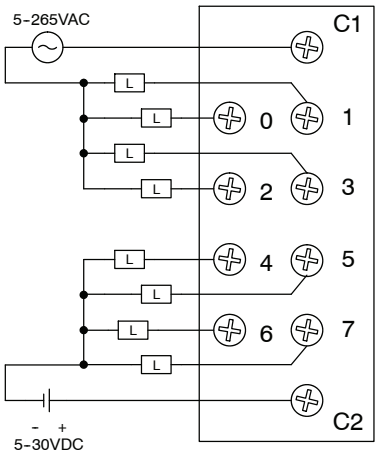


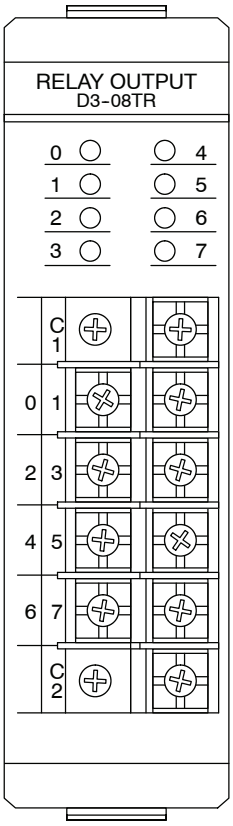
# D3-08TR, Relay Output Module

| | | | | |
|---|---|---|---|---|
| Outputs per module | 8 | | Minimum load | 5 mA @ 5v |
| Commons per module | 2 (isolated) | | Base power required | 9V 45 mA/ON pt.<br>(360 mA Max)<br>24V N/A |
| Operating voltage | 5-265VAC<br>5-30VDC | | | |
| Output type | Form A (SPST) | | OFF to ON response | 5 ms |
| Peak voltage | 265VAC / 30VDC | | ON to OFF response | 5 ms |
| AC frequency | 47-63 Hz | | Terminal type | Non-removable |
| ON voltage drop | N/A | | Status indicators | Logic Side |
| Max current | 4A / point AC<br>5A / point DC<br>6A / common | | Weight | 7 oz. (200 g) |
| | | | Fuses | (2)<br>One 10A per common<br>User replaceable |
| Max leakage current | 1 mA @ 220VAC | | | |
| Max inrush current | 5A | | | |

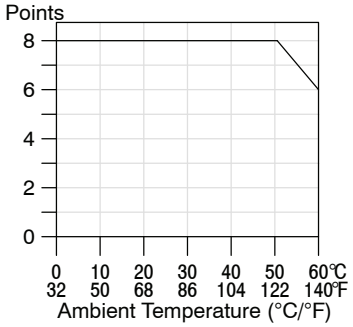
Typical Relay Life (Operations)

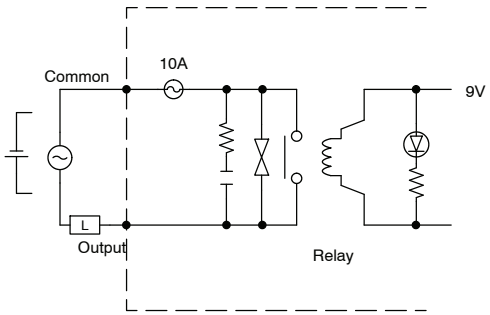
| Voltage | Resistive | Solenoid | Closures |
|---|---|---|---|
| 220VAC | 4A | 0.5A | 100k |
| 220VAC | | 0.05A | 800k |
| 110VAC | 4A | 0.5A | 100k |
| 110VAC | | 0.1A | 650k |
| 24VDC | 5A | 0.5A | 100k |




Derating Chart for D3-08TR



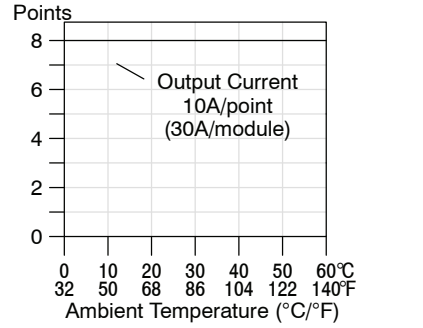

D3-08TR module has been retired as of 03/2022. Please consider BRX, Productivity or CLICK systems as a replacement PLC platform.

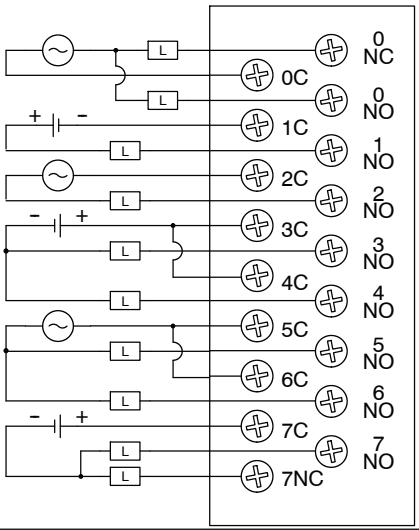
# F3-08TRS-1, Relay Output Module

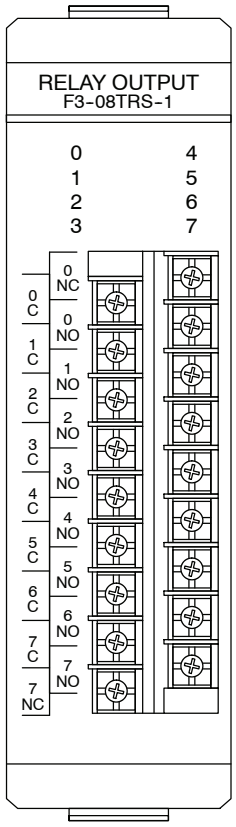
| | | | | |
|---|---|---|---|---|
| Outputs per module | 8 | | Max leakage current | N/A |
| Commons per module | 8 (isolated) | | Max inrush current | 10A Inductive |
| Operating voltage* | 12-125 VAC<br>125-250 VAC requires external fuses<br>12-30 VDC | | Minimum load | 100 mA @12VDC |
| | | | Base power required | 9V 37mA / ON pt. (296 mA Max)<br>24V N/A |
| Output type | 6 Form A (SPST)<br>2 Form C (SPDT) | | OFF to ON response | 13 ms Max |
| | | | ON to OFF response | 9 ms Max |
| Peak voltage | 265 VAC / 120 VDC | | Terminal type | Removable |
| AC frequency | 47-63 Hz | | Status indicators | Logic Side |
| ON voltage drop | N/A | | Weight | 8.9 oz. (252 g) |
| Max current (resistive) | 10A / point AC/DC<br>30A / module AC/DC | | Fuses | (8) One 10A (125V) per common<br>Non-replaceable |

**NOTE:** Contact life may be lengthened beyond those values shown by the use of an appropriate arc suppression. This technique is discussed earlier in this chapter.

### Derating Chart for F3-08TRS-1

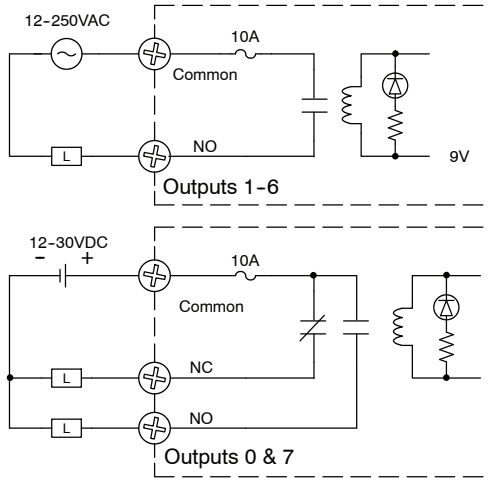



### Typical Relay Life (Operations)

| Maximum Resistive or Inductive Inrush Load Current | Operating Voltage | | |
|---|---|---|---|
| | 28VDC | 120VAC | 240VAC |
| 1/4HP | | 25K | |
| 10.0A | 50K | 50K | |
| 5.0A | 200K | 100K | |
| 3.0A | 325K | 125K | 50K |
| .05A | >50M | | |




*Maximum DC voltage rating is 120 VDC at .5 Amp, 30,000 cycles typical

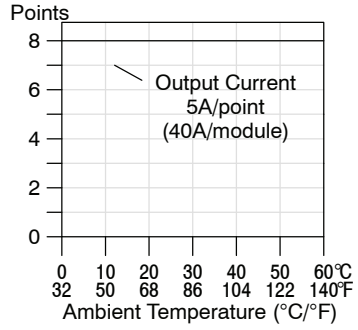
Motor starters up to and including a NEMA size 4 can be used with this module.

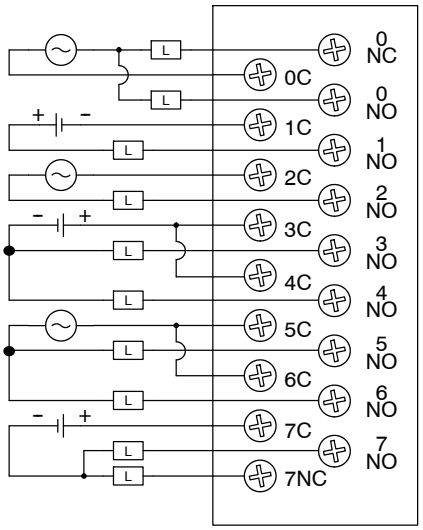
# F3-08TRS-2, Relay Output Module

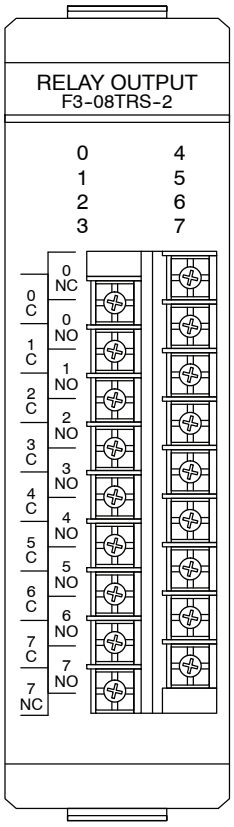
| | | | | |
|---|---|---|---|---|
| Outputs per module | 8 | | Max leakage current | N/A |
| Commons per module | 8 (isolated) | | Max inrush current | 10A Inductive |
| Operating voltage* | 12-125 VAC<br>125-250 VAC requires external fuses<br>12-30 VDC | | Minimum load | 100 mA @12VDC |
| | | | Base power required | 9V 37mA / ON pt. (296 mA Max)<br>24V N/A |
| Output type | 6 Form A (SPST)<br>2 Form C (SPDT) | | OFF to ON response | 13 ms Max |
| | | | ON to OFF response | 9 ms Max |
| Peak voltage | 265 VAC / 120 VDC | | Terminal type | Removable |
| AC frequency | 47-63 Hz | | Status indicators | Logic Side |
| ON voltage drop | N/A | | Weight | 9 oz. (255 g) |
| Max current (resistive) | 5A / point AC/DC<br>40A / module AC/DC | | Fuses<br>19379-K-10A<br>Wickman | (8) One 5A (125V) per common<br>User replaceable |

**NOTE:** Contact life may be lengthened beyond those values shown by the use of an appropriate arc suppression. This technique is discussed earlier in this chapter.

## Derating Chart for F3-08TRS-2



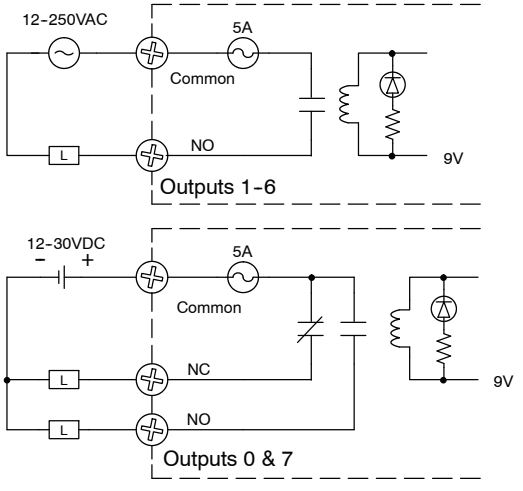




## Typical Relay Life (Operations)

| Maximum Resistive or Inductive Inrush Load Current | Operating Voltage | | |
|---|---|---|---|
| | 28VDC | 120VAC | 240VAC |
| 5.0A | 200K | 100K | |
| 3.0A | 325K | 125K | 50K |
| .05A | >50M | | |

Expected mechanical relay life is 100 million operations.




*Maximum DC voltage rating is 120 VDC at .5 Amp, 30,000 cycles typical

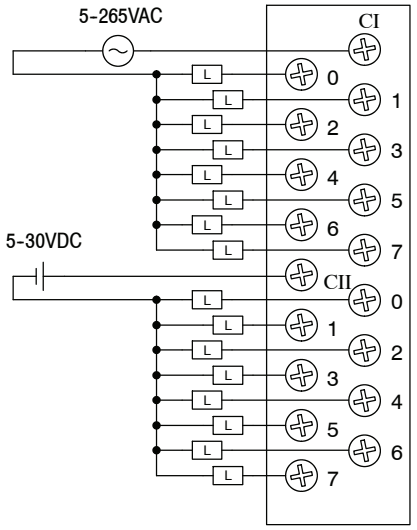
Motor starters up to and including a NEMA size 3 can be used with this module.

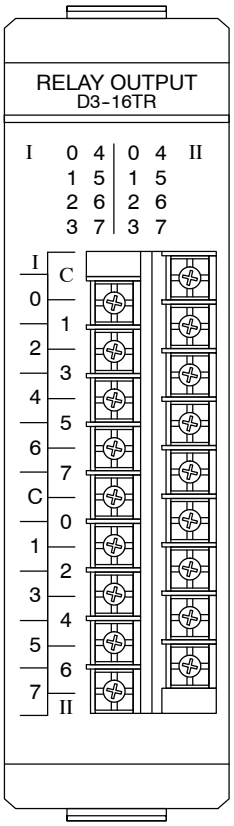
# D3-16TR, Relay Output Module

| | | | | |
|---|---|---|---|---|
| Outputs per module | 16 | | Minimum load | 5 mA @ 5v |
| Commons per module | 2 (isolated) | | Base power required | 9V 30 mA/ON pt. (480 mA Max) 24V N/A |
| Operating voltage | 5-265 VAC 5-30 VDC | | OFF to ON response | 12 ms |
| Output type | 16 Form A (SPST) | | ON to OFF response | 12 ms |
| Peak voltage | 265 VAC / 30 VDC | | Terminal type | Removable |
| AC frequency | 47-63 Hz | | Status indicators | Logic Side |
| ON voltage drop | N/A | | Weight | 8.5 oz. (248g) |
| Max current | 2A / point AC/DC (resistive) 8A / common AC/DC | | Fuses | None |
| Max leakage current | 0.1mA @ 220 VAC | | | |
| Max inrush current | 2A | | | |

Typical Relay Life (Operations)

| Voltage | Resistive | Solenoid | Closures |
|---|---|---|---|
| 220VAC | 2A | 0.25A | 100k |
| 220VAC | | 0.03A | 800k |
| 110VAC | 2A | 0.25A | 100k |
| 110VAC | | 0.05A | 650k |
| 24VDC | 2A | 0.25A | 100k |




Derating Chart for D3-16TR