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

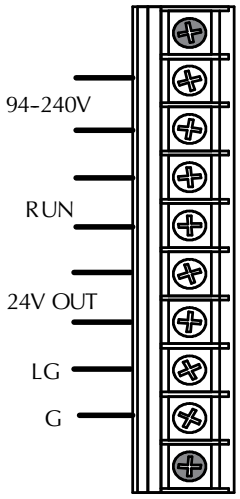
This Errata Sheet contains corrections or changes made after the publication of this manual.

08.2018

Changes to Chapter 2. Installation and Safety Guidelines

Page 2-12. Base Wiring

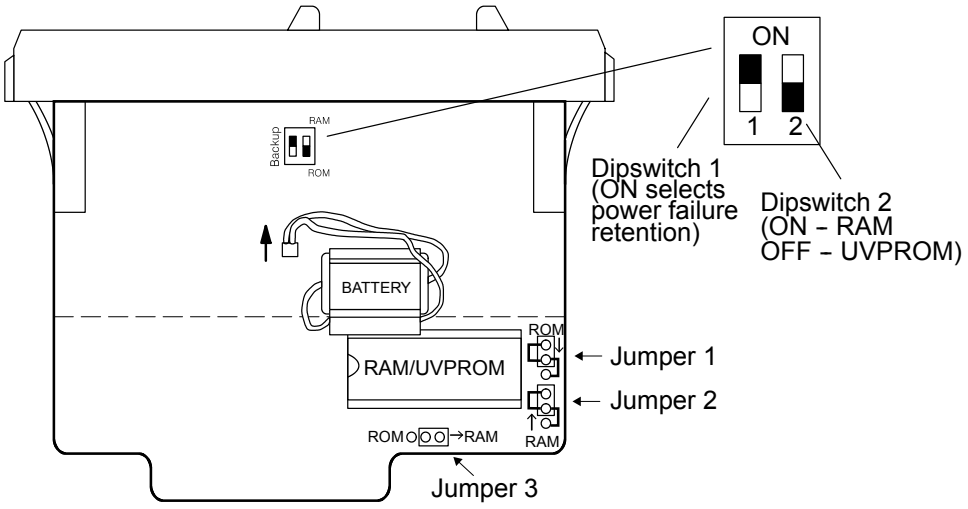
On newer 110-240 VAC bases, the terminal strip has been re-designed and does not have different terminals for 110VAC and 240VAC connections. If you have one of these re-designed bases the terminal strip will look like the graphic shown here.



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:

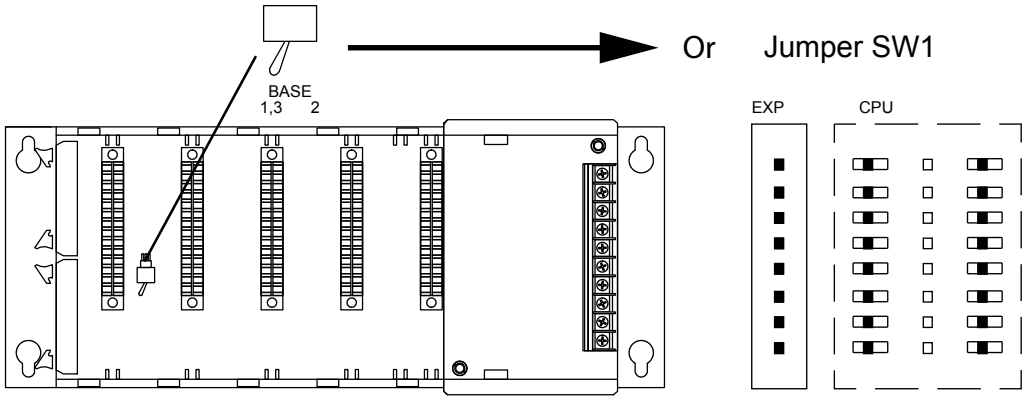
WARNING: If the battery is not installed or connected to the PC board, the 330 CPU will NOT notify you of the error. Be sure the battery is in place and the connector is firmly seated before you install the CPU into the base.

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.***

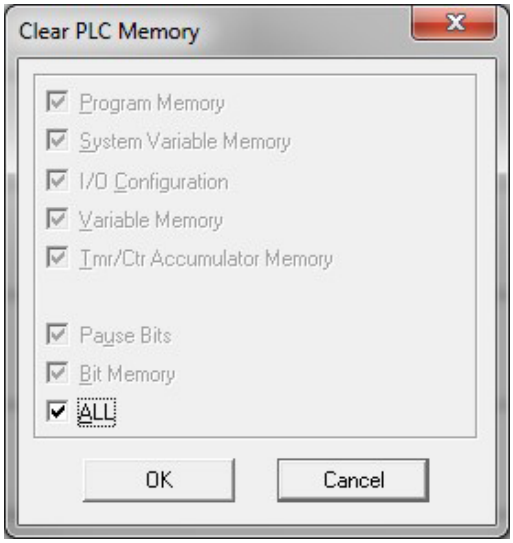
Changes to Chapter 13. Maintenance and Troubleshooting

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

Reset the PLC to Factory Defaults

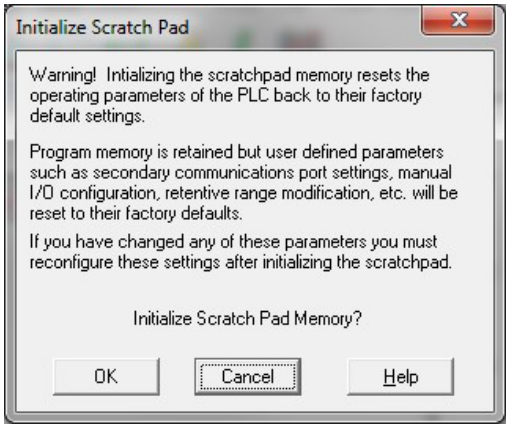
NOTE: ***Resetting to factory defaults will not clear any password stored in the PLC.***

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”.

5

I/O Module Selection & Wiring Guidelines

In This Chapter. . . .

Handheld Programmer D3-HP & D3-HPP have been retired as of 03/2021 & 01/2018 respectively. Please consider Productivity, BRX, or CLICK series PLC systems as upgrades.

I/O Selection Considerations

I/O Module Selection

The DL305 product family offers various types of I/O modules for interfacing many different field devices to the PLC system. There are several electrical characteristics that should be considered when choosing the proper I/O module for a field device or for obtaining required system performance. Electrical characteristics for discrete input modules and discrete output modules are discussed in Chapters 6 and 7. The DL305 family also offers several specialized modules such as analog, ASCII BASIC modules, network interface modules, high speed counter modules, etc. These modules have their own manuals, so if you are using them you should supplement this manual with the manual specifically designed for the special module.

Sinking and Sourcing Circuits

The charts on the following page supply information on the current sinking and current sourcing configurations using DL305 discrete I/O modules. If you have a question about the type of device required to connect to a particular module please refer to the following charts. The charts show nine common input and output module configurations. Match the module part number you are considering to the applicable configuration(s) to ensure the module type will work in your application.

For additional clarification we have included nine diagrams depicting the configurations listed in the charts. These diagrams show the module category, type of device and how they are connected to each other. The diagrams and two examples of wiring a solid state switch to an input module follow the charts on the next page.

DL305 Input Module Configuration Chart

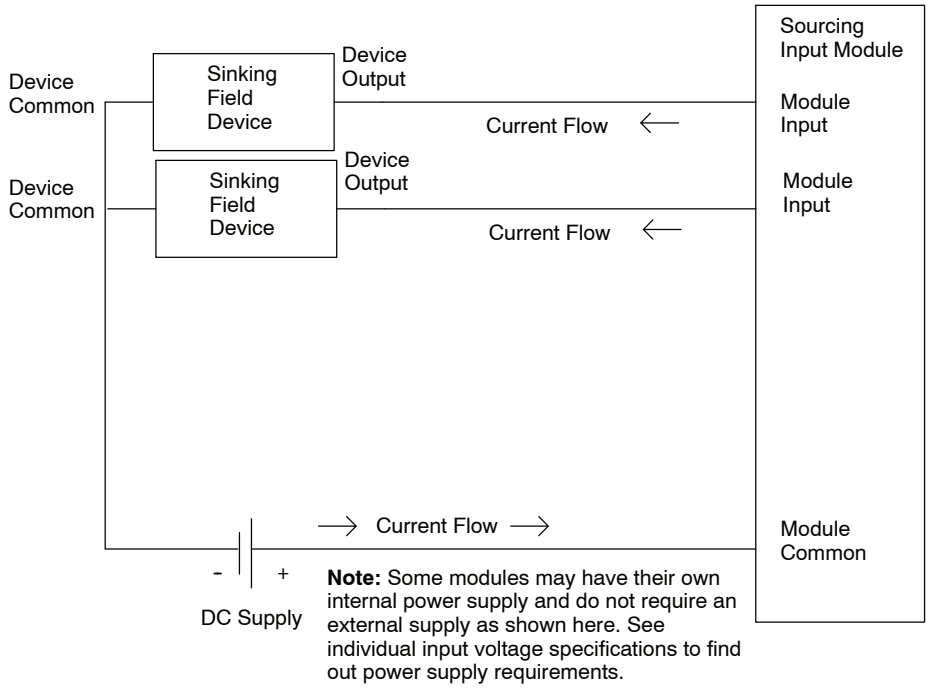
DL305 Input Module Type	**Config #1** DC Current Sourcing Input	**Config #2** DC Current Sink/Source Input	**Config #3** DC Current Sinking Input	**Config #4** AC/DC Input	**Config #5** AC Input
D3-16ND2-1	✓				
D3-16ND2-2*	✓				
D3-16ND2F	✓				
F3-16ND3F		✓			
D3-08ND2	✓				
D3-08NA-1					✓
D3-08NA-2					✓
D3-16NA					✓
D3-08NE3	✓	✓	✓	✓	✓
D3-16NE3	✓	✓	✓	✓	✓

DL305 Output Module Configuration Chart

DL305 Output Module Type	**Config #6** DC Current Sinking Output	**Config #7** DC Current Sourcing Output	**Config #8** AC/DC Current Sink/Source Output	**Config #9** AC Output
D3-04TD1	✓			
D3-08TD1	✓			
D3-08TD2		✓		
D3-16TD1-1	✓			
D3-16TD1-2*	✓			
D3-16TD2		✓		
D3-08TA-1				✓
D3-08TA-2				✓
F3-16TA-1*				✓
F3-16TA-2				✓
D3-16TA-2				✓
D3-08TR			✓	
F3-08TRS-1			✓	
F3-08TRS-2			✓	
F3-08TRS-4			✓	
D3-16TR			✓	
D3-04TAS				✓
F3-08TAS*				✓
F3-08TAS-1	Retired 11-16-2023			✓

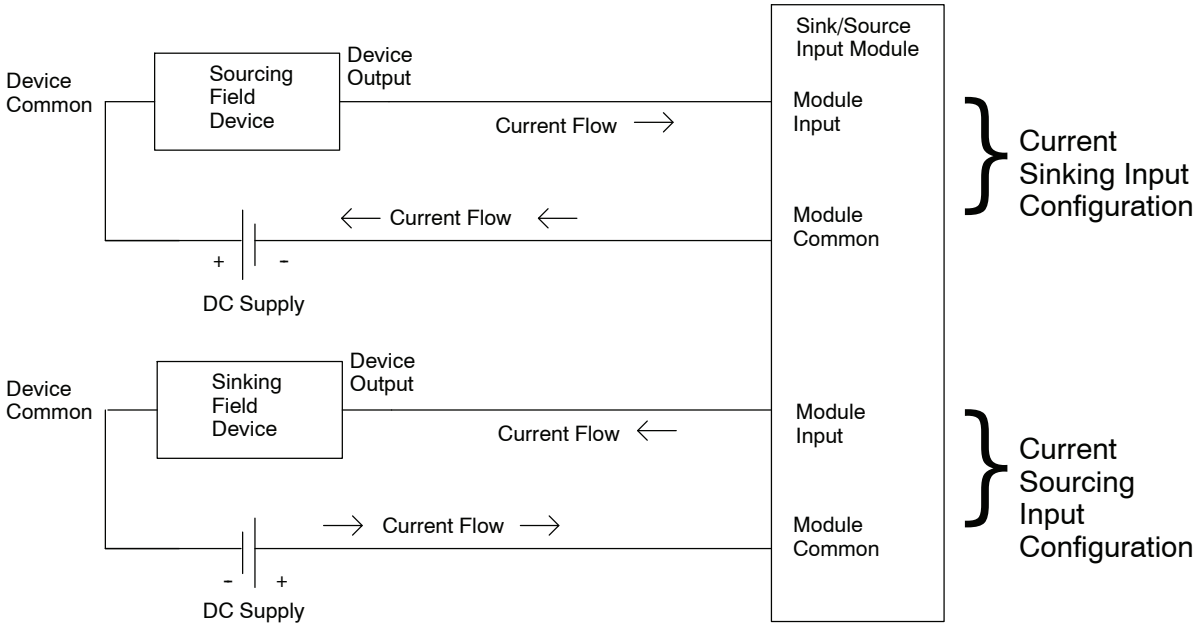
* Obsolete

Configuration #1
DL305 DC Current Sourcing Input Module

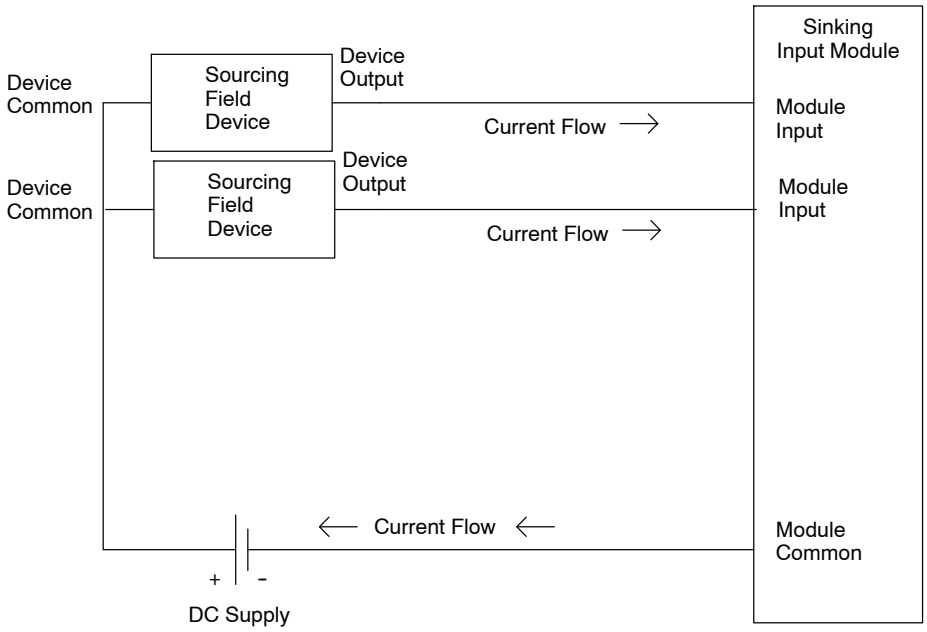


Note: Some modules may have their own internal power supply and do not require an external supply as shown here. See individual input voltage specifications to find out power supply requirements.

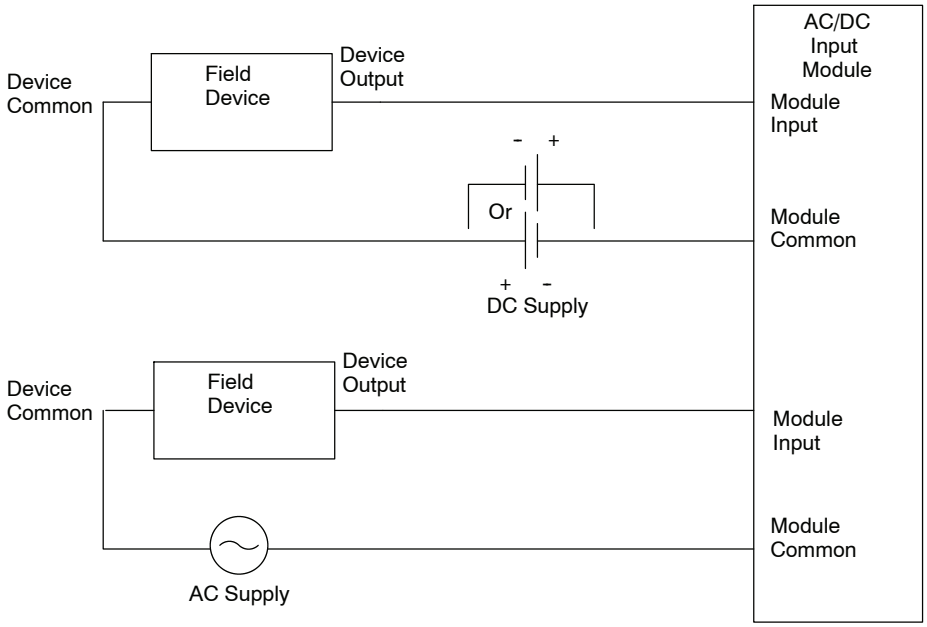
Configuration #2
DL305 DC Current Sinking/Sourcing Input Module



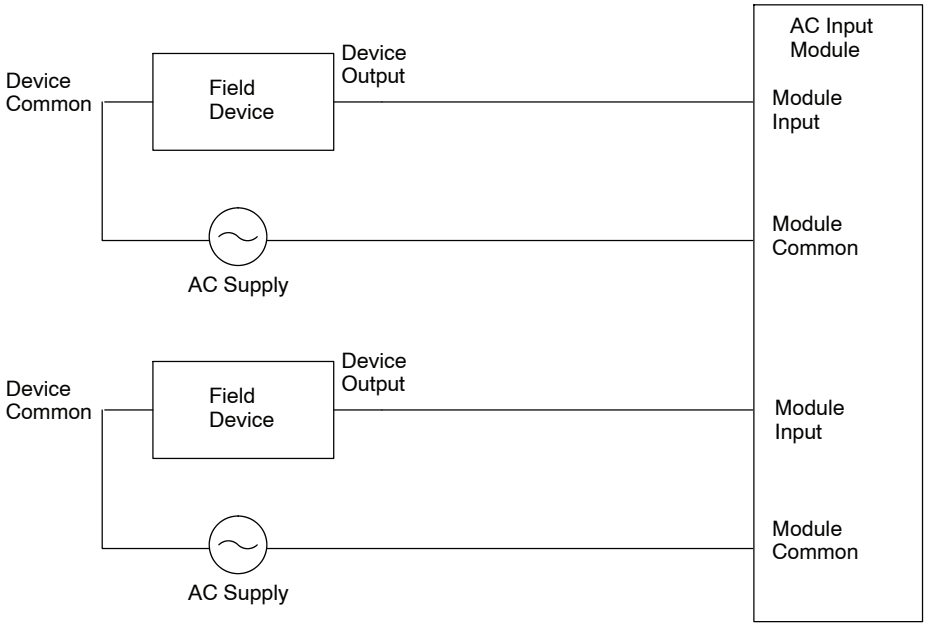
Configuration #3
DL305 DC Current Sinking Input Module



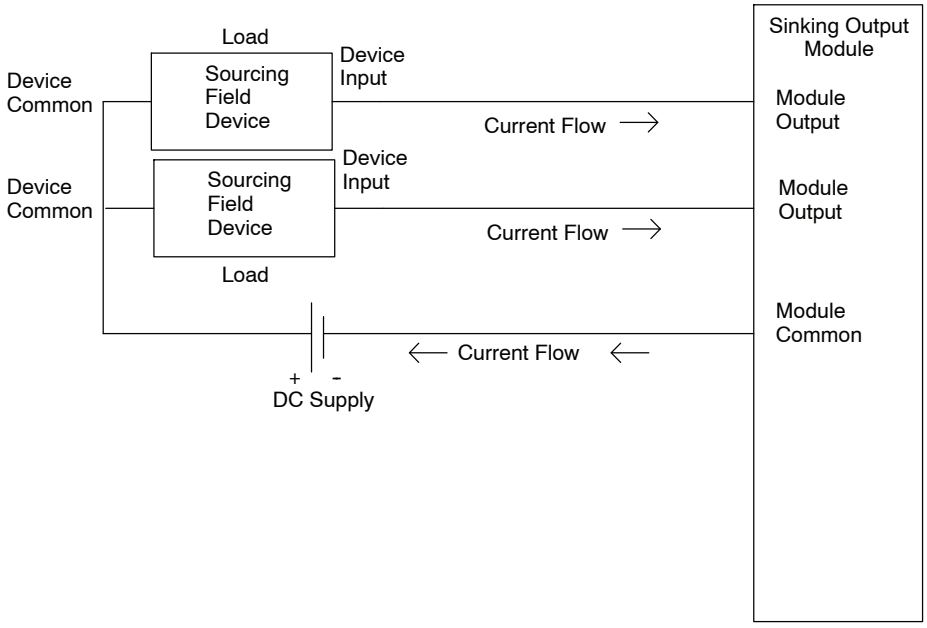
Configuration #4
DL305 AC/DC Input Module



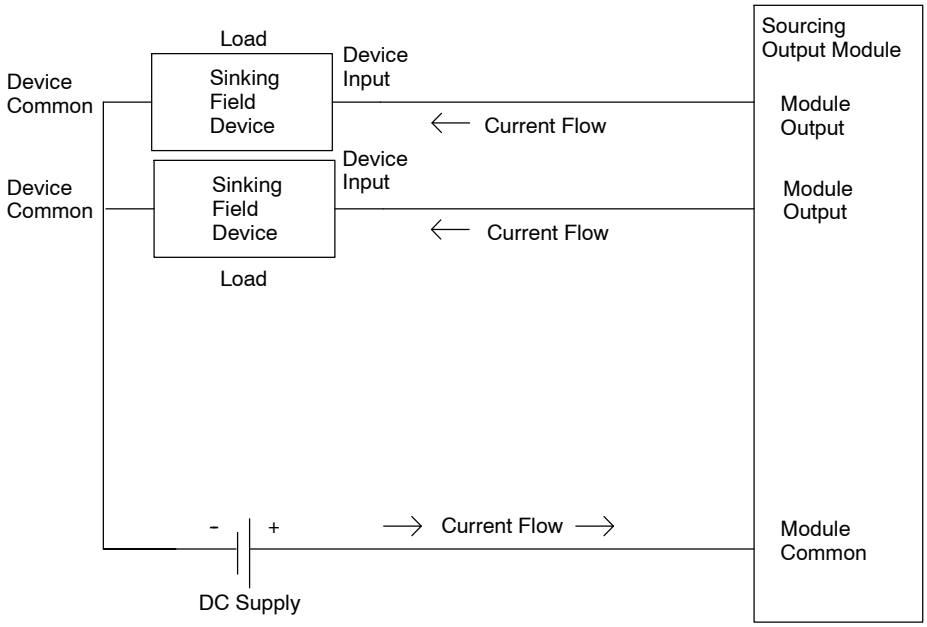
Configuration #5
DL305 AC Input Module



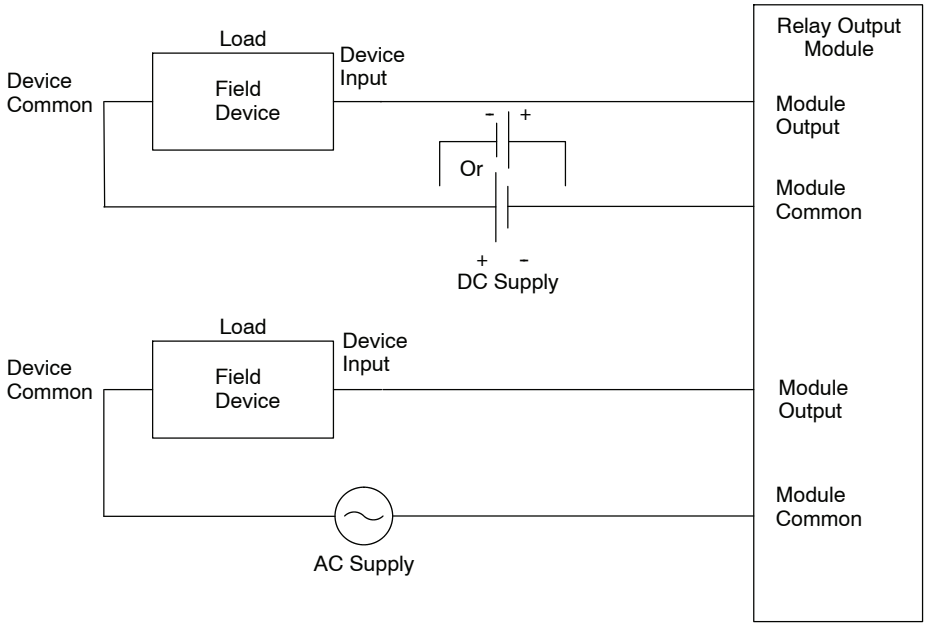
Configuration #6
DL305 DC Current Sinking Output Module



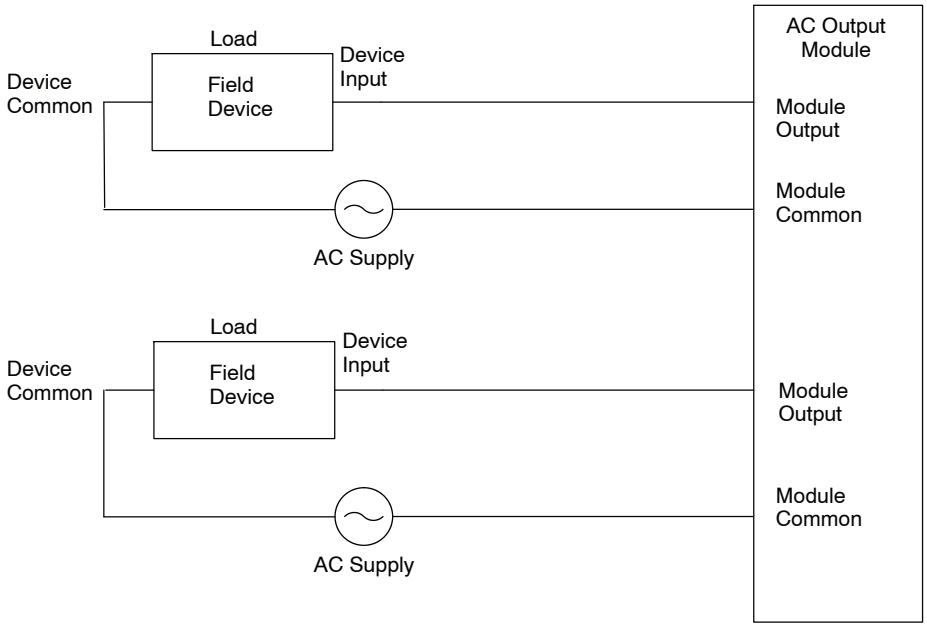
Configuration #7
DL305 DC Current Sourcing Output Module



Configuration #8
DL305 AC/DC Current Sink/Source (Relay) Output Module

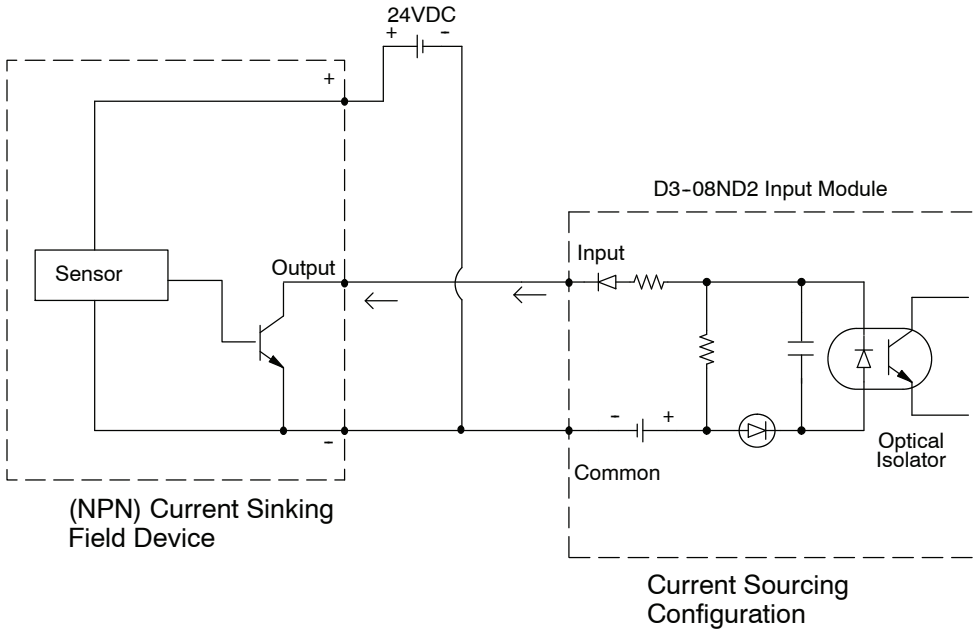


Configuration #9
DL305 AC Output Module

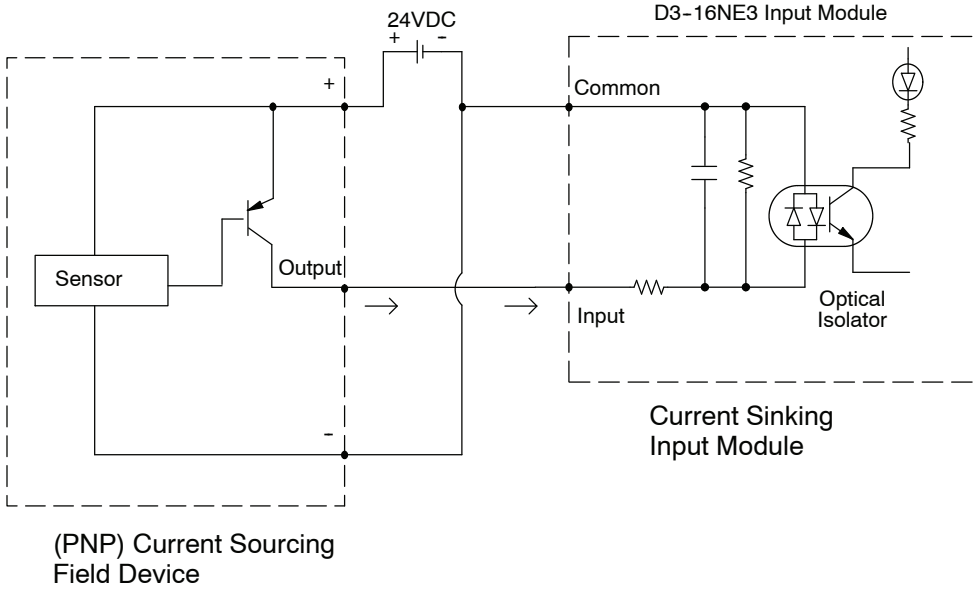


Solid State Field Device Wiring to DC Input Modules

NPN Field Device Example



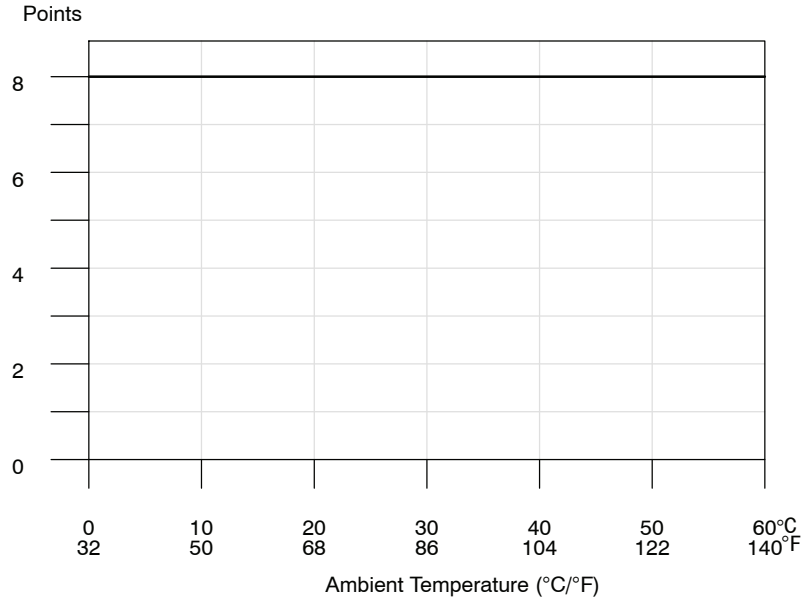
PNP Field Device Example



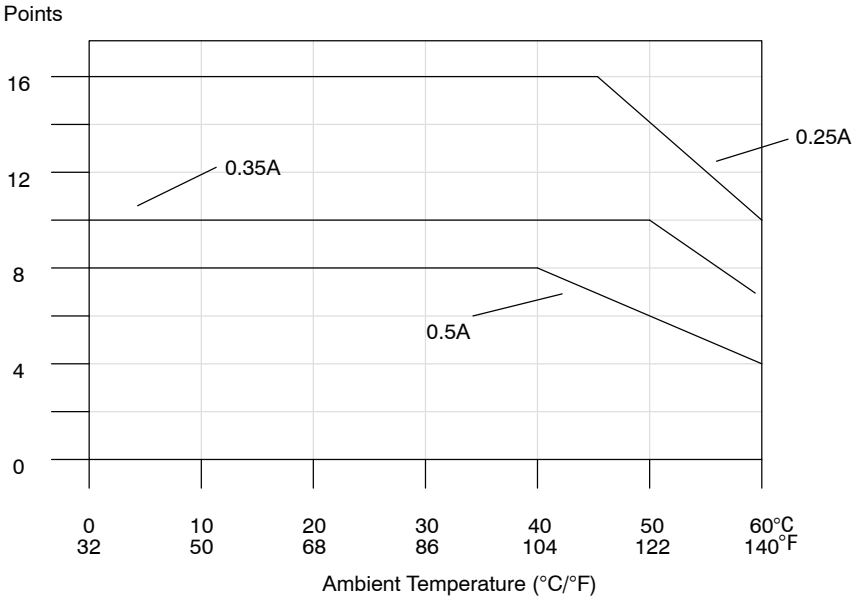
Derating Characteristics

The DL305 input and output module operating specifications change depending on ambient temperature. The I/O specifications have a derating chart for each module which shows functionality in respect to ambient temperature.

The example below shows a derating curve for a D3-08ND2 discrete input module where the operating specifications do not change within the specified temperature operating range.



The example below shows a derating curve for a D3-16TD-1 discrete output module where the operating specifications are affected depending on ambient temperature.



I/O Wiring Guidelines

General Considerations

The following information is to give you a general idea on how to wire the different types of modules in the DL305 system. For specific information on wiring a particular module refer to the specification sheet in the appropriate I/O chapter.

Consider the following guidelines when connecting the field wring.

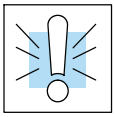
1. There is a maximum AWG the modules can accept. You can uses a smaller AWG than is noted in the table below.

Module type	Maximum AWG
8 point	12
16 point	16

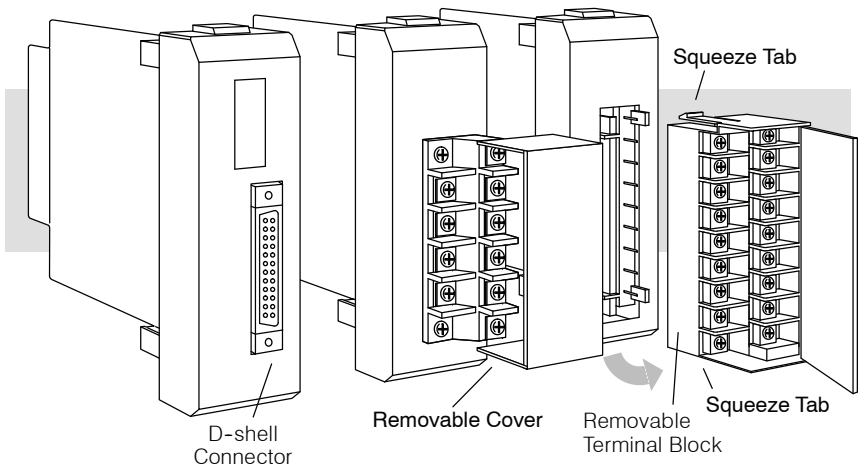
2. Always use a continuous length of wire, do not combine wires to attain a desired length.
3. Use the shortest possible cable length.
4. Use wire trays for routing where possible
5. Avoid running wires near high energy wiring.
6. Avoid running input wiring in close proximity to output wiring where possible.
7. To minimize voltage drops when wires must run a long distance , consider using multiple wires for the return line.
8. Avoid running DC wiring in close proximity to AC wiring where possible.
9. Avoid creating sharp bends in the wires.

Wiring the Different Module Types

There are three main types of module faces for the DL305 I/O. These module faces are: lift covers over terminal blocks, flip covers over terminal blocks and D–shell compatible sockets. If the module you are using has a cover you can remove the cover either by lifting from the bottom or by flipping the door open. Some of the modules have removable terminal blocks. These modules can be recognized by the squeeze tabs on the top and bottom of the terminal block. To remove the terminal block, press the squeeze tabs and pull the block away from the module.



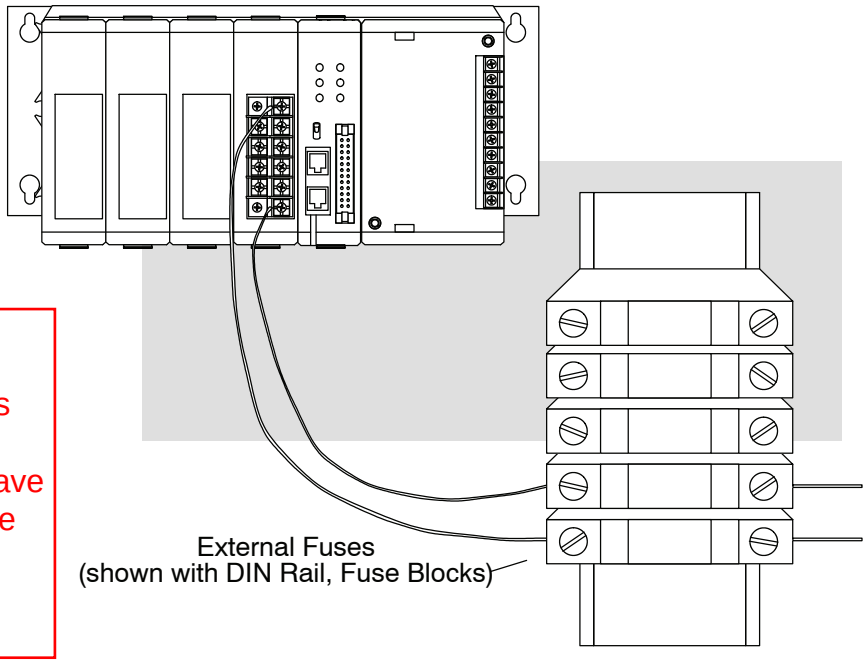
WARNING: For some modules, field device power may still be present on the terminal block even though the PLC system is turned off. To minimize the risk of electrical shock, check all field device power *before* you remove the connector.



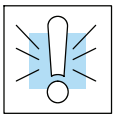
Fuse Protection

To help avoid blowing the internal module fuses, we suggest you add external fuses to your I/O wiring. A fast blow fuse with a lower current rating than the I/O module fuse can be added to each common. Or, you can add a fuse with a rating of slightly less than the maximum current per output point to each output. Refer to the I/O module specification sheets to find the maximum current per point or per common for output modules. Adding the external fuse does not guarantee the prevention of module damage, but it will provide added protection.

External Fuse Example



See Errata Sheet at the beginning of this file. The wording in this WARNING has been changed to:
WARNING: Modules which have soldered-in or non-replaceable fuses are non-repairable and should be replaced with new modules.



~~**WARNING: For modules which have soldered-in or non-replaceable fuses, we recommend that you return the module to us and let us replace your blown fuse(s) since the module fuses are attached to the board and disassembling the module will void your warranty.**~~