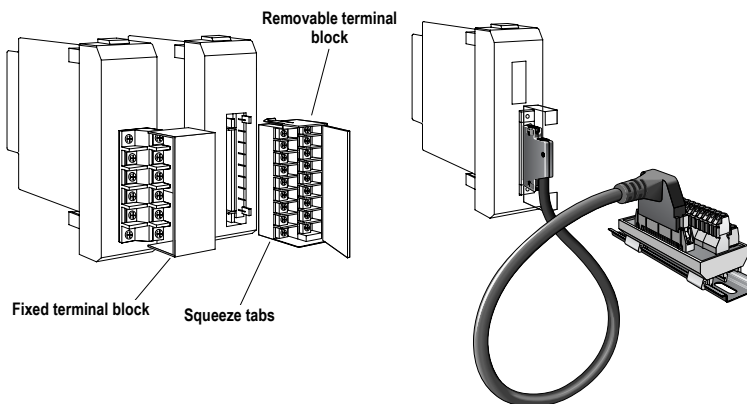


I/O Selection

Factors affecting field termination

Sinking and sourcing for DC field devices: If you are using a DC type of field device, then you should consider whether the device is a sinking or sourcing configuration. This may affect your module selection since it determines the manner in which the device must be wired to the module. (Both sinking and sourcing modules are available.) Refer to the sinking/sourcing section of the Appendix for a complete explanation of how this could affect your system.

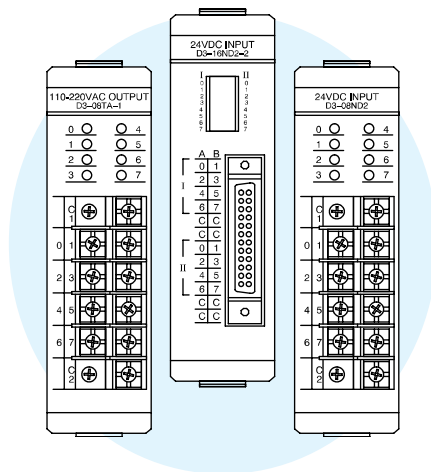
Physical wire terminations: In general, DL305 modules use five types of field terminations. They include: removable terminal blocks (included on most 8 and 16-point modules), fixed terminal blocks; specialty D-sub connectors (used on a few 16-point modules), standard D-sub connectors (used on most specialty intelligent modules), and phone jack style (used on some specialty modules and the universal cable kit). The module descriptions indicate the connector type that is on the module. The following illustrations shows these types of connectors. You can also use our DIN rail-mounted terminal blocks, DINnectors, or **ZIPLink** cables as a field termination interface to the PLC and I/O modules.



ZIPLinks eliminate the tedious process of wiring PLC I/O terminal blocks.

Choose your modules

Now that you understand the factors that affect your choice of an I/O module, it's time to choose ones that best suit your needs. When you have selected the modules, proceed to the next section to choose an I/O configuration scheme that best suits your application.



Extra connectors or spare fuses

There are several types of spare parts that may be useful. A filler module provides a quick and easy way to cover empty slots. Or, it is sometimes helpful to have extra I/O module connectors or spare fuses. Also, keep in mind the *DINnector* family of terminal blocks that provide DIN rail-mounted terminal blocks for simplifying and organizing your wiring needs.

- **D3-8IOCVR** – 8pt. I/O terminal plastic covers
\$17.00
- **D3-FUSE-4** – Fuses for D3-08TAS, D3-08TAS-1, F3-16TA-1 and F3-16TA –2
\$23.00
- **D3-FUSE-6** – Fuses for F3-08TRS-2
\$23.00
- **D3-ACC-3** – Spare terminal screws for 16pt. I/O modules
\$26.00

ZIPLink Connection System

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.

DL305 I/O Configuration

Local I/O – Local I/O are the modules that reside in the same base as the CPU. The status of each I/O point is updated on each I/O scan of the CPU.

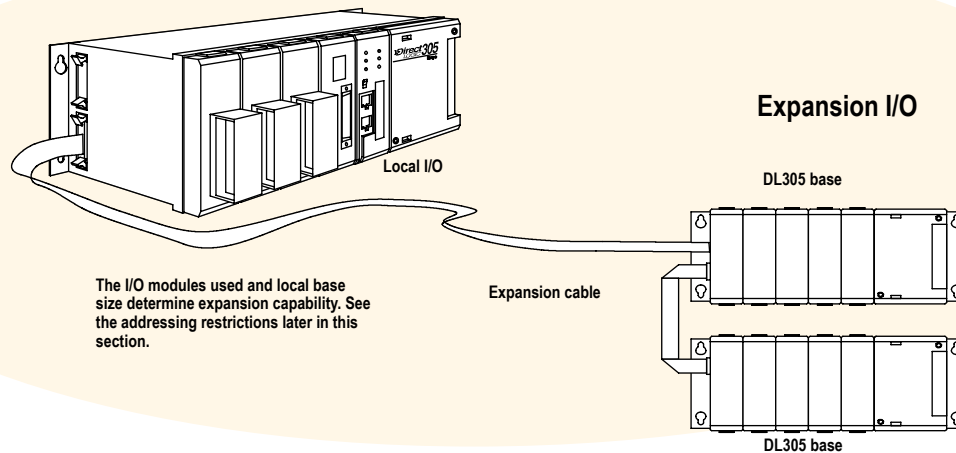
Local expansion I/O – Most local CPU bases can be expanded to include expansion I/O. Local expansion is commonly used when there are not enough I/O points available in the existing base configuration or the power budget maximum for the existing base will be exceeded with the addition of I/O. This configuration requires an additional base(s) and an I/O expansion cable(s). The CPU treats the expanded I/O in the same manner as local I/O, with updates every CPU I/O scan. There are certain addressing restrictions that are related to expansion I/O.

Remote I/O – (D3-350 CPU) – Remote I/O is used when you need to place I/O bases at some remote distance from the CPU base. There are certain restrictions that are related to remote I/O. Check the catalog section on DL205 Remote I/O for examples and additional information.

| I/O Configuration Limitations | D3-350 | D3-350 with -1 bases (AC powered only) |
|---|-------------|--|
| 5-slot Local CPU Base System | 64 I/O max | 64 I/O max |
| 5-slot Local CPU Base System with a 5-slot Expansion Base | 128 I/O max | 144 I/O max |
| 5-slot Local CPU Base System with two 5-slot Expansion Bases | 128 I/O max | 224 I/O max |
| 10-slot Local CPU Base System | 136 I/O max | 144 I/O max |
| 10-slot Local CPU Base System with a 5-slot Expansion Base | 176 I/O max | 224 I/O max |
| 10-slot Local CPU Base System with a 10-slot Expansion Base | 184 I/O max | 304 I/O max |

Note: The 16-point modules must be in the first eight slots adjacent to the CPU, rolling over into an expansion base if necessary.

Example of I/O system with expansion I/O



I/O Module Locations

The design of the DL305 has a long and successful history. Each time the product family has grown or been enhanced, compatibility with the earlier products has been preserved to protect customer investments. This has resulted in an I/O numbering system and I/O location scheme that has some special requirements.

The Module Placement Guideline table explains the rules that pertain to module location. Some specialty modules have additional requirements. These are explained in their respective module data sheets. Remember that the power budget will limit the location where some modules can be placed in a base.

| Module Placement Guidelines | |
|---|--|
| Device | Placement |
| CPU | <ul style="list-style-type: none"> The CPU must reside in the first slot of the local CPU base (closest to the power supply). The CPU slot does consume an I/O slot. For example, a D3-05BDC 5-slot base has a slot for the CPU and 4 slots for I/O modules. |
| 16 Point I/O Modules | A maximum of eight 16-point modules may be installed in a system. However, the actual number allowed depends on the type of CPU you are using. <u>D3-350</u> - maximum of eight 16-pt. modules <u>D3-350</u> - w/-1 base can have 16-pt. modules in all available slots |
| <i>Note: some specialty modules, such as the High Speed Counter and Thumbwheel Interface Unit, require 16 points and are treated as 16-point modules. The 16-point modules must be in the first 8 slots adjacent to the CPU. They may roll over into an expansion base if necessary. If any of the 8 slots adjacent to the CPU are not used for 16-point modules, they can be used for 8-point modules.</i> | |
| Analog | Analog modules must reside in any valid 16-point I/O module slot. |
| ASCII BASIC Modules | ASCII BASIC modules can be placed in any valid 16-point I/O slot. (D3-350 does not support these modules) |
| High Speed Counter | A High-Speed Counter must be used in the first four I/O module slots in the local CPU base. (D3-350 does not support these modules) |

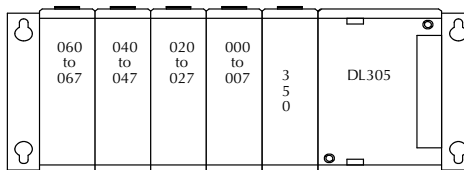
| I/O Points Usage Table for Modules | | | | | |
|---|----|-------------------|---|-----------------|----|
| The following table indicates the number of I/O points that are used by each module. Use this information to ensure your I/O configuration stays within the valid I/O count of your chosen CPU. | | | | | |
| DC Input | | Relay Output | | Analog | |
| <u>F3-16ND3F</u> | 16 | <u>F3-08TRS-1</u> | 8 | <u>F3-04ADS</u> | 16 |
| | | <u>F3-08TRS-2</u> | 8 | | |
| AC/DC Input | | | | | |
| <u>D3-08NE3</u> | 8 | | | | |

D3-350 Addressing

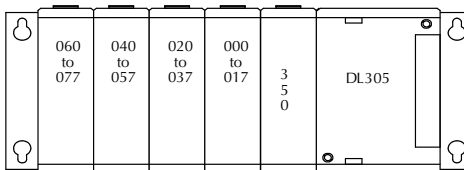
I/O addressing

When the I/O modules are installed in a 5-slot base and all expansion bases are also 5-slot bases, the addressing scheme is very simple. 16 I/O points are assigned to each slot. This applies even if the slot contains an 8-point module or if the slot is empty. Expansion base addresses follow in succession from the previous base. Input modules are assigned addresses X0 through X777. Output modules are assigned address Y0 through Y777.

5-slot base using 8-pt. I/O modules



5-slot base using 16-pt. I/O modules

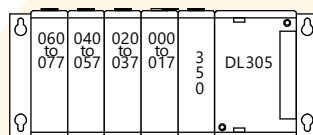


D3-350 and F3-PMUX-1 CPUs, D3-232-DCU and all DL305 series bases have been retired. Please consider integrating to our Productivity, BRX, or CLICK PLC systems.

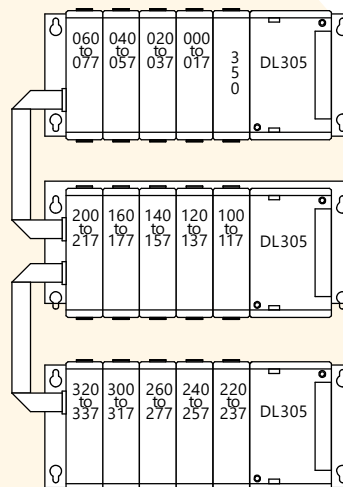
5-Slot Base Example Configurations

5-Slot bases

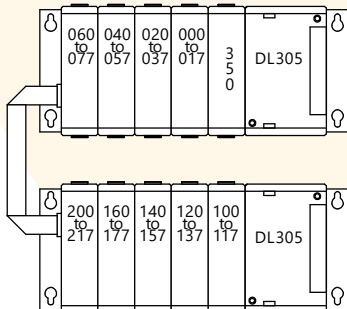
5-slot local
Total I/O: 64



5-slot local and two 5-Slot expansions
Total I/O: 224

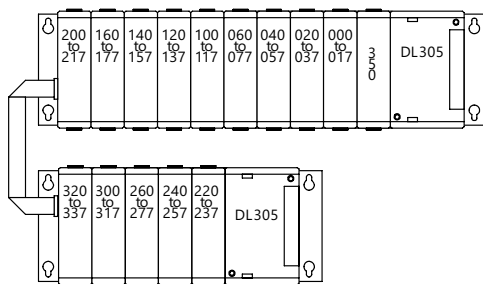


5-slot local and 5-slot expansions
Total I/O: 144



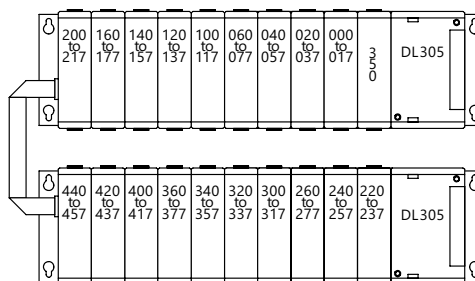
10-Slot Base Example Configurations

10-slot local and 5 slot expansion
Total I/O: 224



10-slot bases

10 slot local and 10 slot expansion
Total I/O: 304



10 slot local
Total I/O: 144

