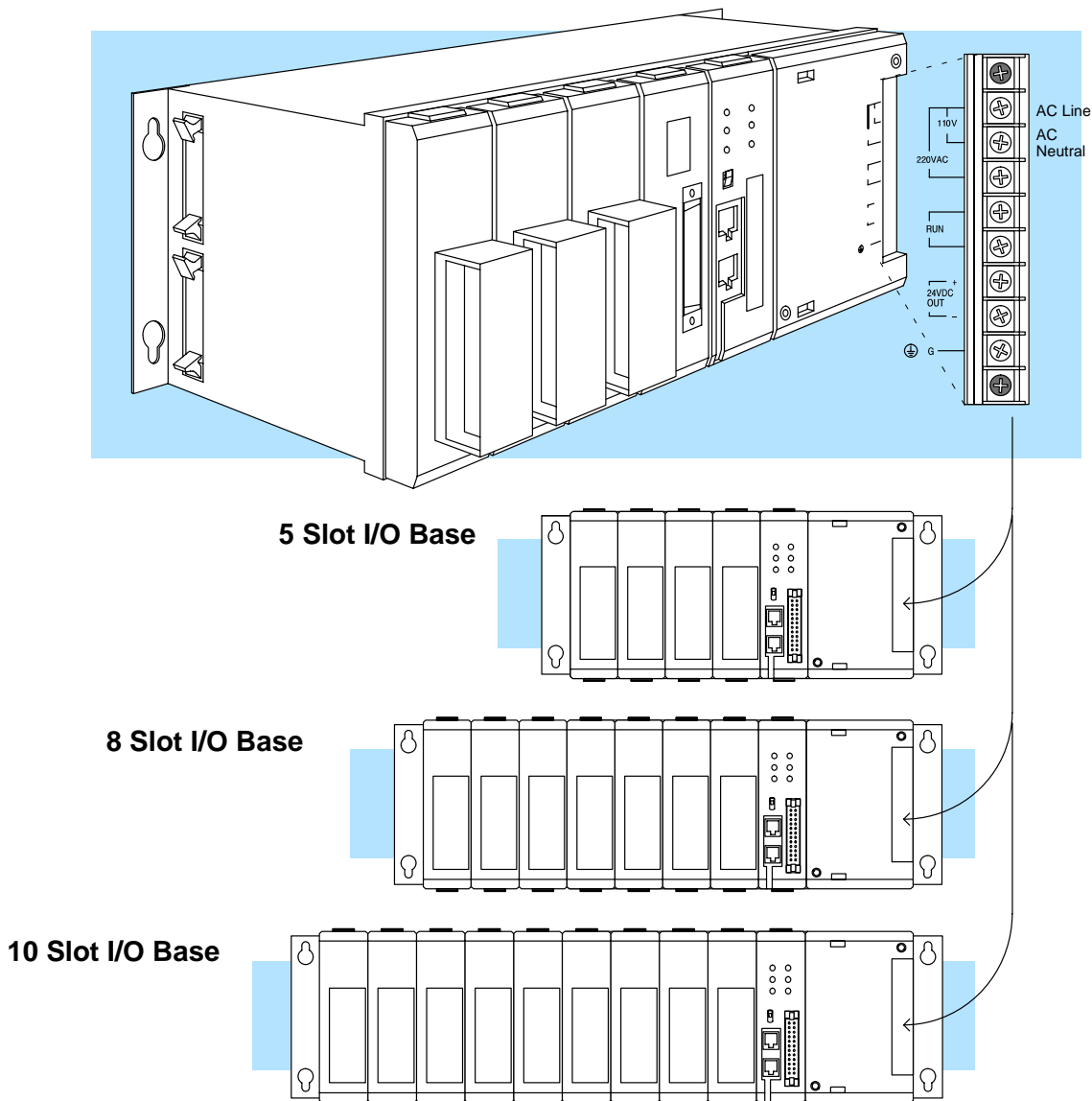


## Base Specifications and Wiring

### Three Sizes of Bases

There are three base sizes available to hold your I/O modules: 5, 8 and 10 slot. The 5 and 10 slot bases can be used as either a local CPU base or an expansion base. The 8 slot base can only be used as a local CPU base. The 5, 8, and 10 slot bases are available with a built-in 110/220 VAC power supply. The 5 slot base is also available with a built-in 24 VDC power supply.

Remote I/O is not offered in the DL305 product family. All DL305 products, with the exception of the DL340 CPU, are compatible with remote I/O systems previously offered by GE FANUC® and TEXAS INSTRUMENTS®



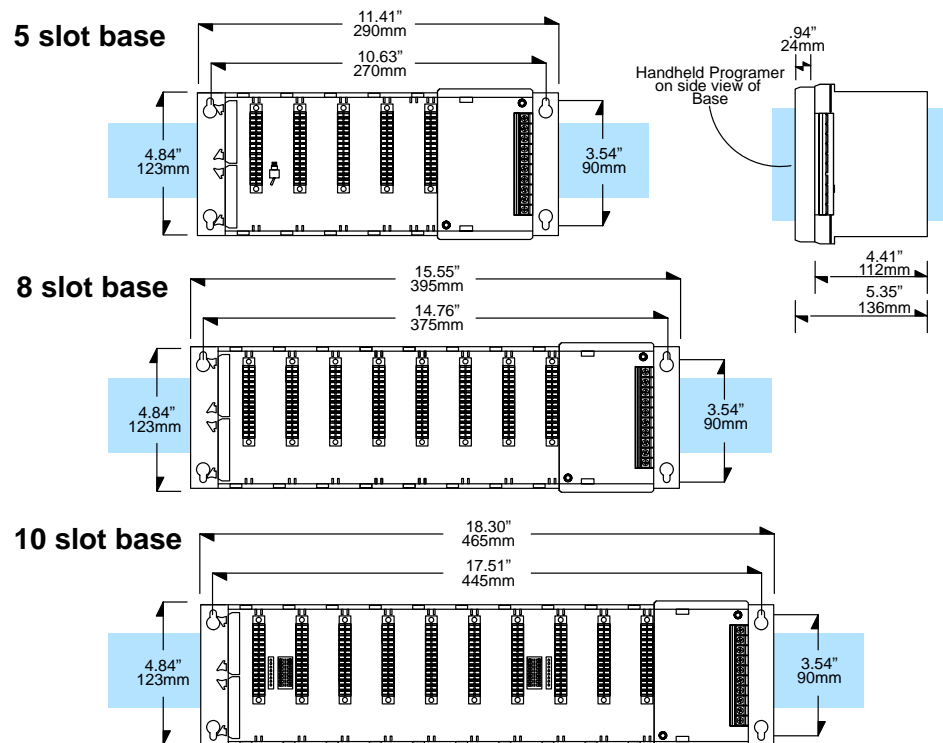
### Bases and Maximum I/O Supported

The maximum I/O for the base combinations is shown below. The number of I/O points supported also depends on the which CPU is used in the system.

Base Configuration	DL330 / DL330P CPU	DL340 CPU
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	120 I/O max.	128 I/O max.
5 slot local CPU base system with two 5 slot expansion bases	120 I/O max.	128 I/O max.
8 slot local CPU base system	112 I/O max.	112 I/O max.
8 slot local CPU base system with a 5 slot expansion base	152 I/O max.	152 I/O max.
10 slot local CPU base system	128 I/O max.	136 I/O max.
10 slot local CPU base system with a 5 slot expansion base	168 I/O max.	176 I/O max.
10 slot local CPU base system with a 10 slot expansion base	176 I/O max.	184 I/O max.

### Base Mounting Dimensions

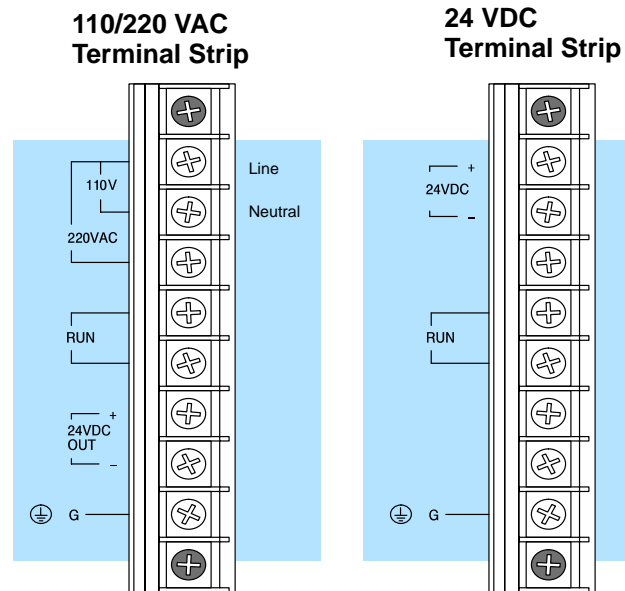
Use these mounting dimensions when you install the DL305 bases. Make sure you have followed the installation guidelines shown in Chapter 2 for proper spacing.



### Connecting the Power Supply

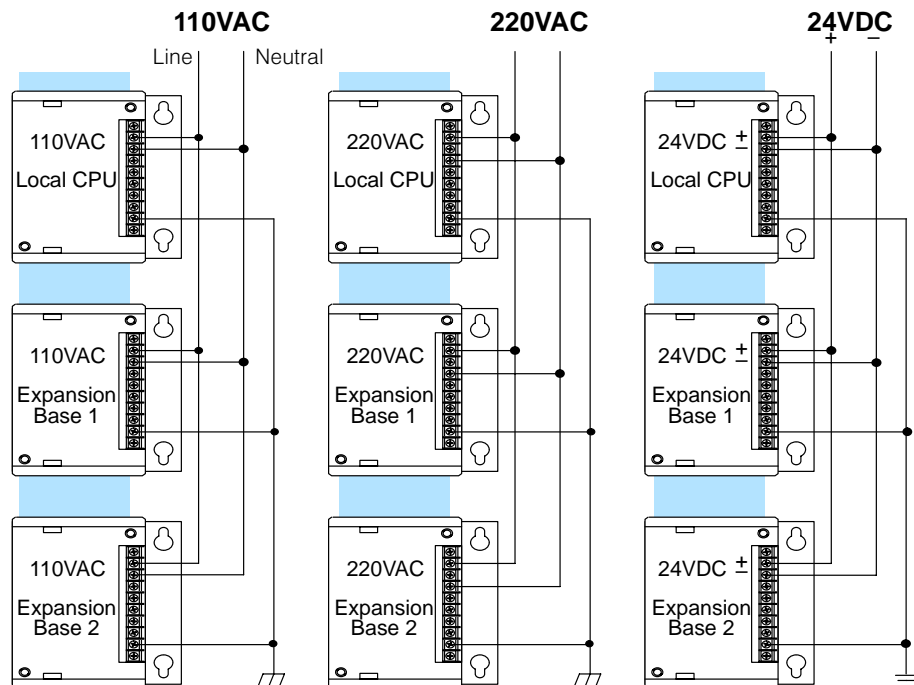
The following diagram shows the terminal connections located on the power supply of the DL305 bases.

**WARNING:** Damage will occur to the base power supply if 230 VAC is connected to the 115 VAC terminal connections. Once the power wiring is connected, install the protective cover. When the cover is removed there is a risk of electrical shock if you accidentally touch the connection terminals.



### Expansion Base Power Supply Wiring Example

The following diagram shows how to connect the power when you use both local CPU and Expansion bases.



## Base Specifications

	D3-05B	D3-05BDC	D3-08B	D3-10B
<b>Number of Slots</b>	5	5	8	10
<b>Local CPU Base</b>	Yes	Yes	Yes	Yes
<b>Expansion Base</b>	Yes	Yes	No	Yes
<b>Input Voltage Range</b>	97–132 VAC 194–264 VAC 47–63Hz	20.5–30 VDC <10% ripple	97–132 VAC 194–264 VAC 47–63Hz	97–132 VAC 194–264 VAC 47–63Hz
<b>Base Power Consumption</b>	70 VA max (46W)	48 Watts	70 VA max (57W)	70 VA max (57W)
<b>Inrush Current max.</b>	30A	30A	30A	30A
<b>Dielectric Strength</b>	1500VAC for 1 minute between terminals of AC P/S, Run output, Common, 24VDC	1500VAC for 1 minute between 24VDC input terminals and Run output	1500VAC for 1 minute between terminals of AC P/S, Run output, Common, 24VDC	2000VAC for 1 minute between terminals of AC P/S, Run output, Common, 24VDC
<b>Insulation Resistance</b>	>10MΩ at 500VDC	>10MΩ at 500VDC	>10MΩ at 500VDC	>10MΩ at 500VDC
<b>Power Supply Output (Voltage Ranges and Ripple)</b>	(5VDC) 4.75–5.25V less than 0.1V p-p (9VDC) 8.5–13.5V less than 0.2V p-p (24VDC) 20–28V less than 1.2V p-p	(5VDC) 4.75–5.25V less than 0.1V p-p (9VDC) 8.5–13.5V less than 0.2V p-p (24VDC) 20–28V less than 1.2V p-p	(5VDC) 4.75–5.25V less than 0.1V p-p (9VDC) 8.0–12.0V less than 0.2V p-p (24VDC) 20–28V less than 1.2V p-p	(5VDC) 4.75–5.25V less than 0.1V p-p (9VDC) 8.0–12.0V less than 0.2V p-p (24VDC) 20–28V less than 1.2V p-p
<b>5 VDC current available</b>	1.4A *	1.4A	1.4A @ 122° F (50° C) 1.0A @ 140° F (60° C)	1.4A @ 122° F (50° C) 1.0A @ 140° F (60° C)
<b>9 VDC current available</b>	0.8A *	0.8A	1.7A @ 122° F (50° C) 1.4A @ 140° F (60° C)	1.7A @ 122° F (50° C) 1.4A @ 140° F (60° C)
<b>24 VDC current available</b>	0.5A *	0.5A	0.6A	0.6A
<b>Auxiliary 24 VDC Output</b>	100mA max	None	100mA max	100mA max
<b>Run Relay</b>	250 VAC, 4A (resistive load)	250 VAC, 4A (resistive load)	250 VAC, 4A (resistive load)	250 VAC, 4A (resistive load)
<b>Fuses</b>	2A (250V) User replaceable	4A (250V) User replaceable	2A (250V) User replaceable	2A (250V) User replaceable
<b>Dimensions WxHxD</b>	11.42x4.85x4.41 in. (290x123x112 mm)	11.42x4.85x4.41 in (290x123x112 mm)	15.55x4.85x4.41 in (395x123x112 mm)	18.3x4.85x4.41 in. (465x123x112 mm)
<b>Weight</b>	34 oz. (964g)	34 oz. (964g)	44.2 oz. (1253g)	50.5 oz. (1432g)

\* The total current for the D3-05B must not exceed 2.3A.

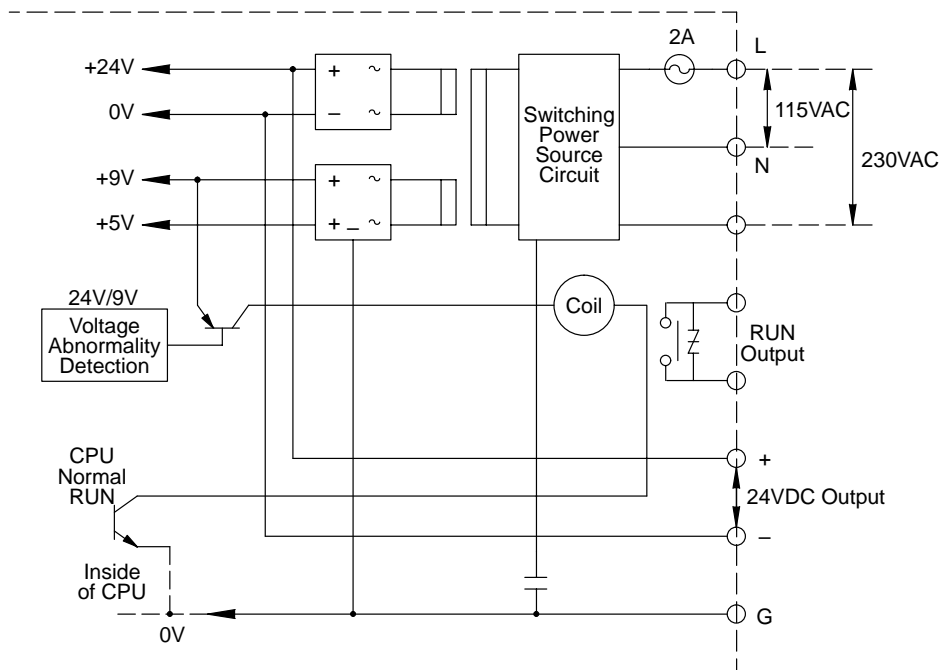
### Auxiliary 24VDC Output at Base Terminal

There is 24 VDC available from the 24 VDC output terminals on all bases except the 5 slot DC version (D3-05BDC). The 24 VDC supply can be used to power external devices or DL305 modules that require external 24 VDC. The power used from the this 24 VDC output reduces the internal system 24 VDC available to the modules by an equal amount. So if you use this power supply, make sure you consider this when you calculate the power budget. (The power budget is discussed in more detail later in this chapter.)

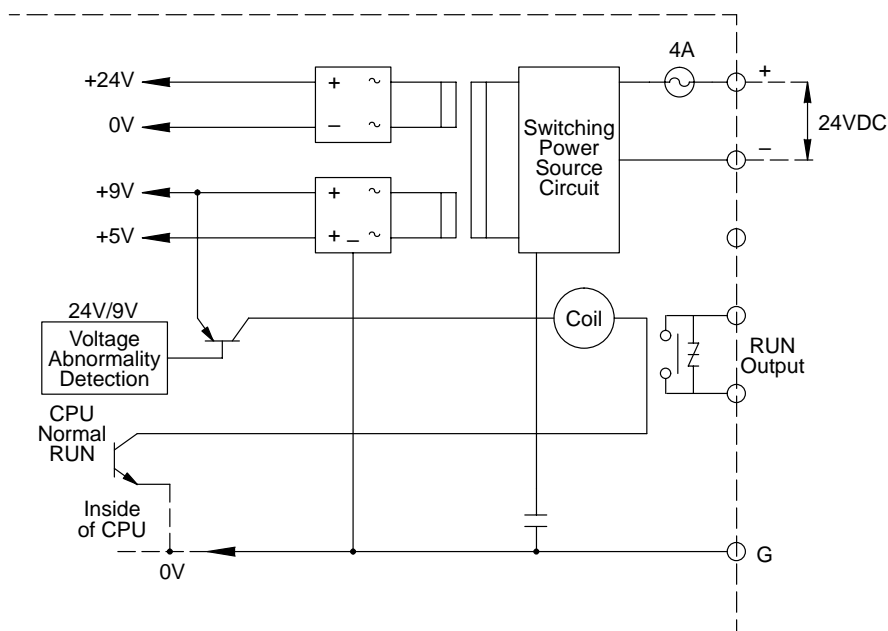
## Power Supply Schematics

The following diagram shows the details of how the DL305 base provides many of the specifications listed on the previous page.

**Schematic for D3-05B, D3-08B, D3-10B**



**Schematic for D3-05BDC**

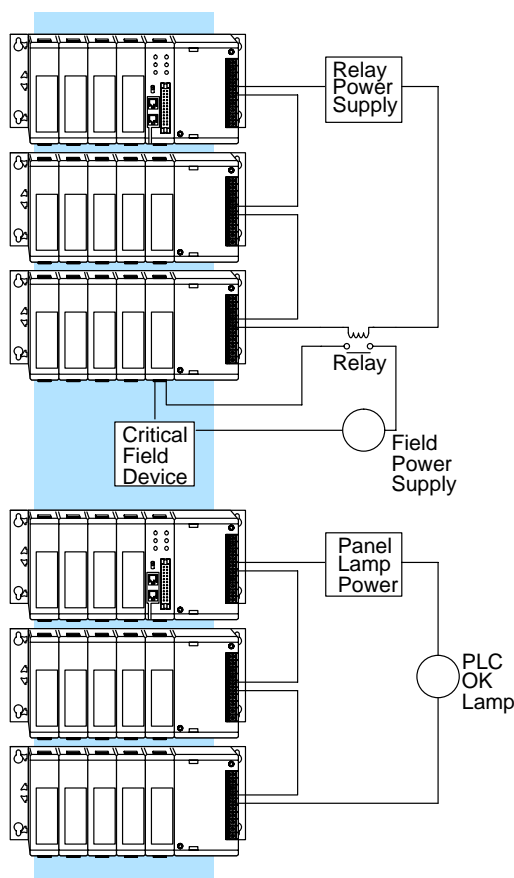


### Using the Run Relay on the Base Power Supply

The RUN relay output, located on the DL305 base power supply, can be used to detect an undesired failure on the local CPU base or an expansion base. The following table shows the operating characteristics of the RUN relay for a local CPU base or an expansion base.

Event	Local CPU Base RUN Relay Would:	Expansion Base RUN Relay Would:
PROGRAM to RUN mode Transition	Energize	Not change
The CPU detects a fatal error	De-energize	Not change
CPU Local Base is Removed Form the RUN Mode	De-energize	Not change
Power Source to the Power Supply is Turned OFF	De-energize	De-energize
9 VDC or 24 VDC Failure on the Power Supply	De-energize	De-energize

The following example demonstrates possible uses for the RUN relay on the DL305 bases.

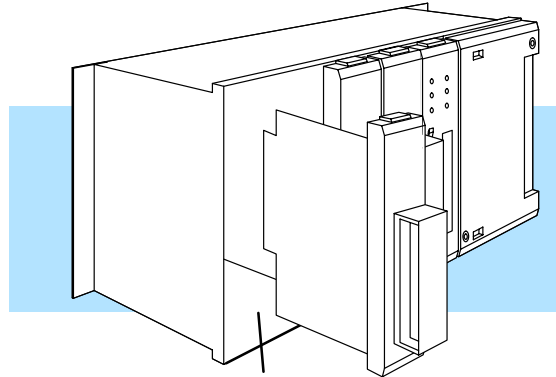


Use of the RUN relay to shutdown critical field devices upon error detection

Use of the RUN relay to monitor system operation

**Installing CPUs  
and I/O Modules**

The CPU must go into first slot (next to the power supply) on the far right side of the base. When inserting components into the base, align the PC board(s) of the module with the grooves on the top and bottom of the base. Push the module straight into the base until it is firmly seated in the backplane connector. To remove a module from the base squeeze the tabs on the top and bottom of the faceplate and pull the module straight out.



Align module to  
slots in base and slide in

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**WARNING:** Do not remove any system component when system power is on. This may cause damage to the system or unpredictable system operation that can result in a risk of personal injury.

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## Using Bases for Local or Expansion I/O Systems

### Base Uses Table

It is helpful to understand how you can use the various DL305 bases in your control system. The following table shows how the bases can be used.

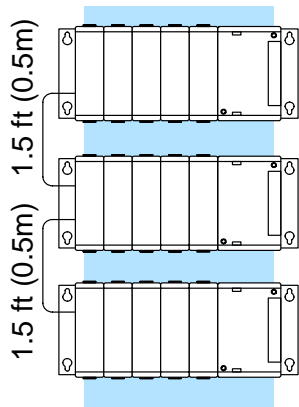
Base Part #	Number of Slots	Can Be Used As A Local CPU Base	Can Be Used As An Expansion Base
D3-05B	5	Yes	Yes
D3-05BDC	5	Yes	Yes
D3-08B	8	Yes	No
D3-10B	10	Yes	Yes

### Local/Expansion Connectivity

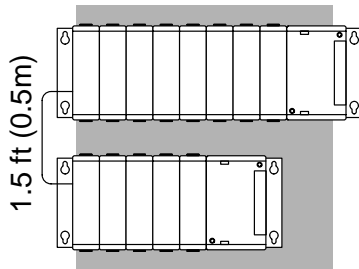
The configurations below show the valid combinations of local CPU bases and expansion bases.

**NOTE:** You should use one of the configurations listed below when designing an expansion system. If you use a configuration not listed below the system will not function properly.

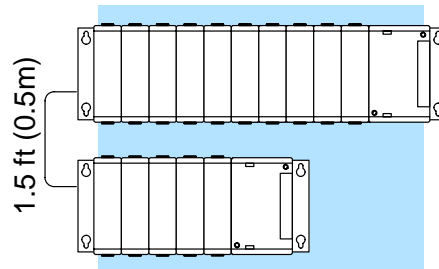
5 slot local CPU base  
with a maximum of two  
5 slot expansion bases



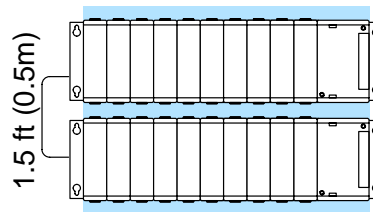
8 slot local CPU base with  
a 5 slot expansion base



10 slot local CPU base with  
a 5 slot expansion base



10 slot local CPU base  
with a  
10 slot expansion base

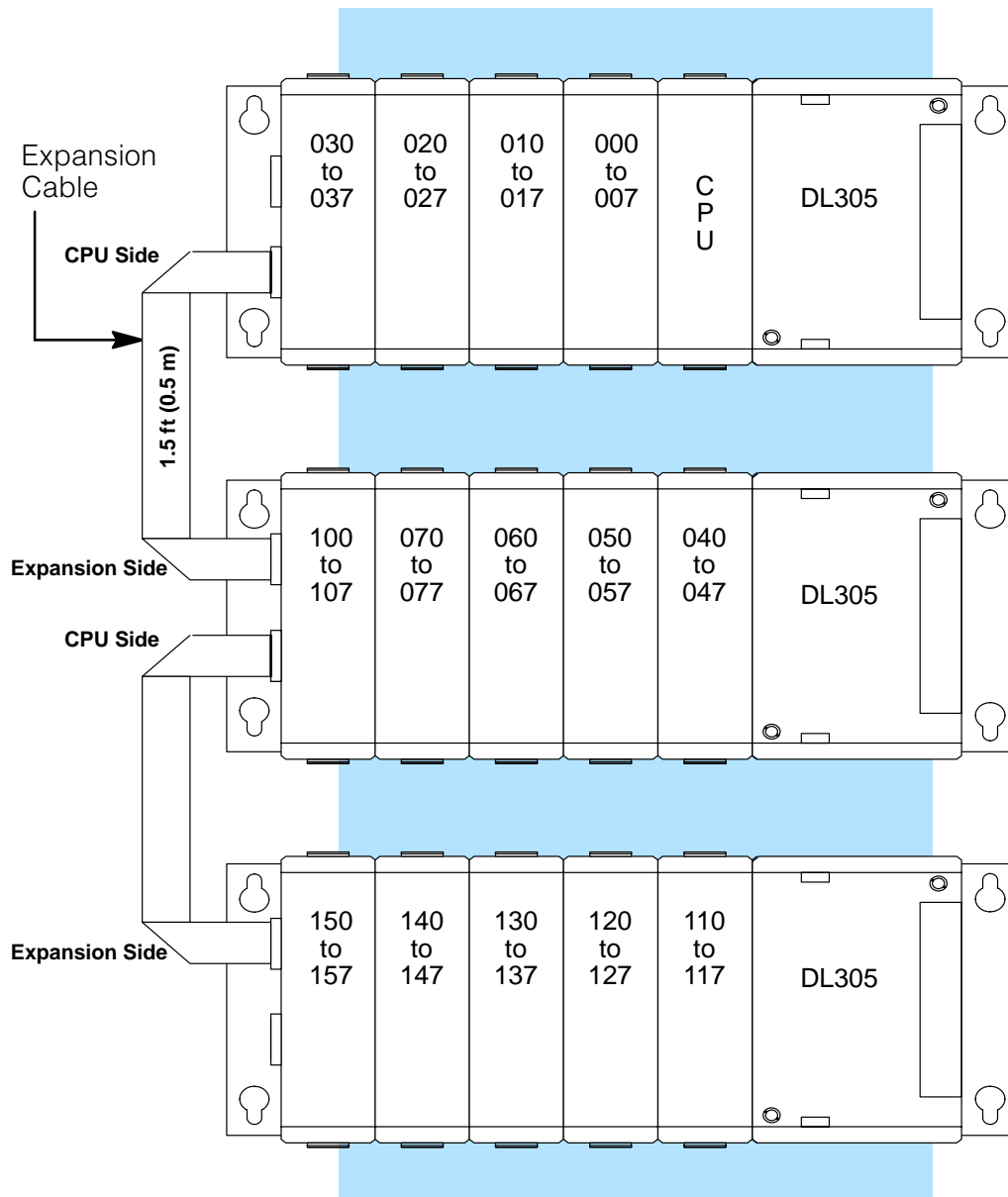




### Connecting Expansion Bases

The local CPU base is connected to the expansion base using a 1.5 ft. cable (D3-EXCBL). The base must be connected as shown in the diagram below.

The top expansion connector on the base is the input from a previous base. The bottom expansion connector on the base is the output to an expansion base. The expansion cable is marked with “CPU Side” and “Expansion Side”. The “CPU Side” of the cable is connected to the bottom port of the base and the “Expansion Side” of the cable is connected to the top port of the next base.



Note: Avoid placing the expansion cable in the same wiring tray as the I/O and power source wiring.

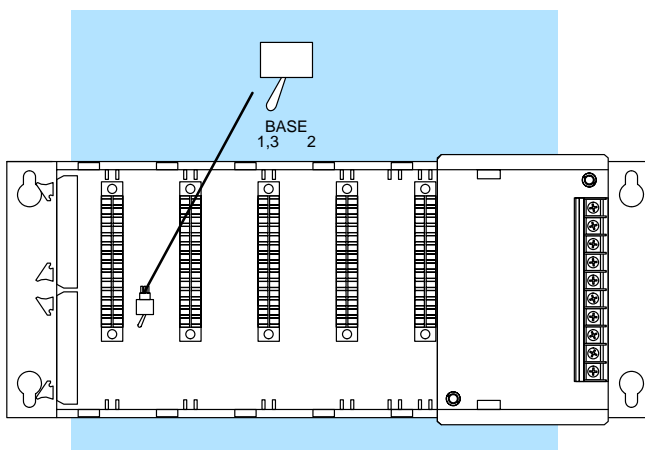
## Setting the Base Switches

### 5 Slot Bases

The 5 slot and 10 slot bases have jumper switches that need to be set depending on which system configuration is used. The 8 slot base does not have any switches.

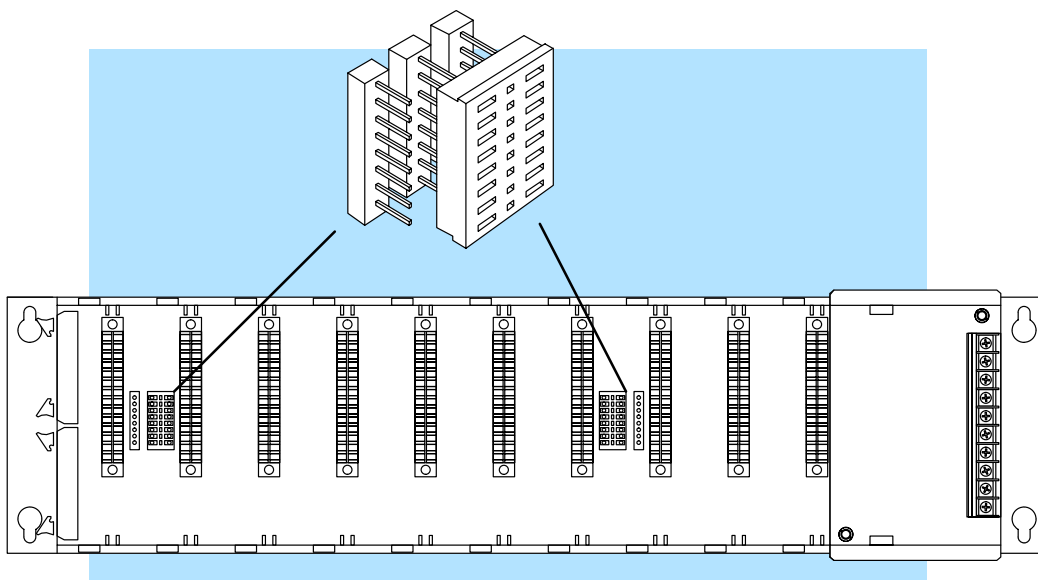
The 5 slot bases have a two position toggle switch which is used to set the base as the CPU local base, the first expansion base, or the second (last) expansion base.

The switch is set to the “1,3” position if the base is the local CPU base or the third base in the system. The switch is set to the “2” position if the base is the 2nd base in the system. If the 5 slot base is used as an expansion base for a 10 slot local CPU base the switch is set in the “1,3” position.



### 10 Slot Base

The 10 slot base has a jumper switch between slot 3 and 4 used to set the base to local CPU base or expansion base. There is also a jumper switch between slot 9 and 10 that sets slot 10 to the 100–107 I/O address range or to the 700–707 I/O address range.

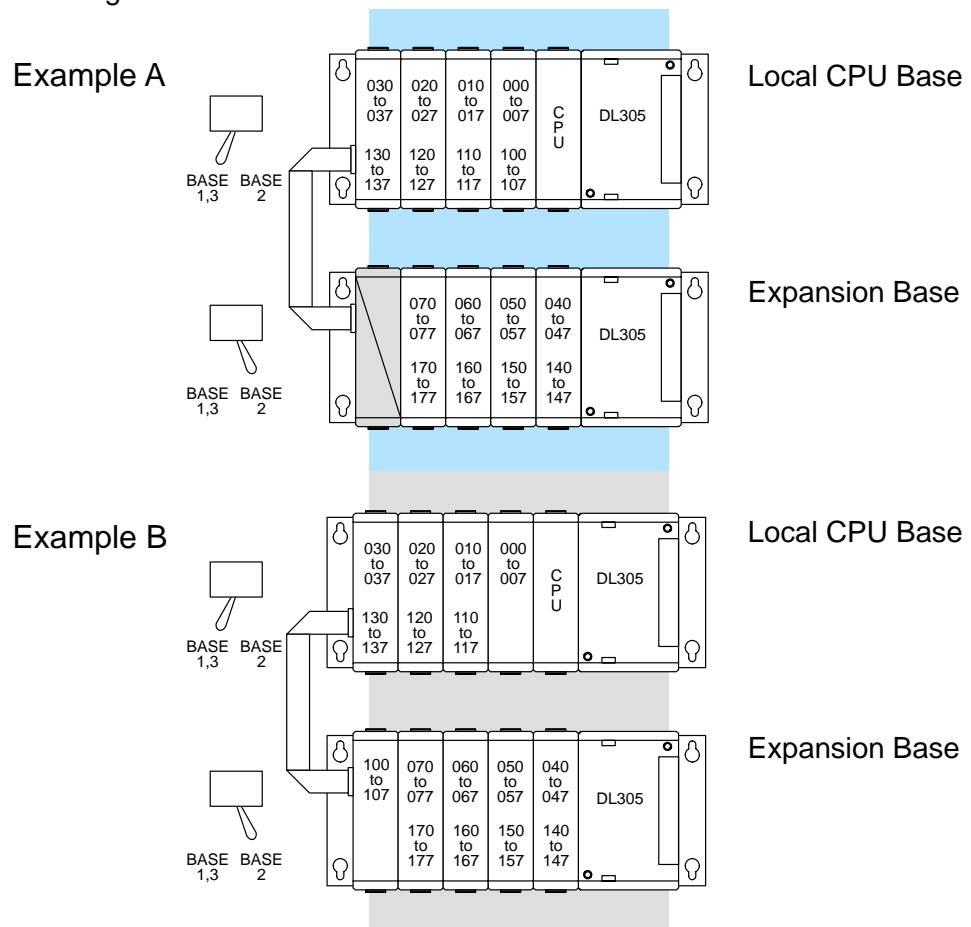


## Example I/O Configurations

### 16 Point I/O Allocation Example

The following system configurations will allow you to quickly configure your system by using examples. These system configurations show the I/O numbering and the base switch settings for every valid base configuration for a DL305 system.

When a 16 point I/O module is used the last 8 I/O addresses of each 16 point module could have been used in another base slot. In the illustration below Example A shows a 16 point module in the slot next to the CPU using address 000–007 and 100–107. The expansion I/O cannot use the last slot of the expansion base since it is assigned addresses 100–107 and the 16 point module next to the CPU has already used these addresses. Example B shows an 8 point module in the slot next to the CPU and an 8 point module in the last slot of the expansion base. Both examples are valid configurations .



### Examples Show Maximum I/O Points Available

For the following examples the configurations using 16 point I/O modules are shown with the maximum I/O points supported so you can always reduce the I/O count in one of our examples and the configuration will still be valid. Substitution of 8 point I/O modules can be made in place of any of the 16 point modules without affecting the I/O numbering for any of the other I/O modules. When a 16 point module is replaced with a 8 point I/O module the last 8 I/O addresses of that 16 point module may or may not be useable in another slot location, depending on the system configuration used

# I/O Configurations with a 5 Slot Local CPU Base

The configurations below and on the next few pages show a 5 slot base with 8 point I/O modules, 16 point modules, one expansion base and two expansion bases.

Switch settings

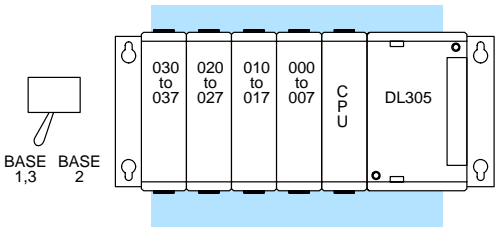
The 5 slot base has a toggle switch on the inside of the base between slots 4 and 5 which allows you to select:

Type of Base	Switch Position
Local CPU	Base 1,3
First Expansion	Base 2*
Last Expansion	Base 1,3

\*used only with a 5 slot local CPU base

5 Slot Base  
with 8 Point I/O

Total I/O: 32



5 Slot Base  
with 16 Point I/O

Total I/O: 64

