

Calculating the Power Budget

Managing your Power Resource

When you determine the types and quantity of I/O modules you will be using in the DL205 system it is important to remember there is a limited amount of power available from the power supply. We have provided a chart to help you easily see the amount of power available with each base. The following chart will help you calculate the amount of power you need with your I/O selections. At the end of this section you will also find an example of power budgeting and a worksheet for your own calculations.

If the I/O you choose exceeds the maximum power available from the power supply, you may need to use local expansion bases or remote I/O bases.



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CPU Power Specifications

The following chart shows the amount of current *available* for the two voltages supplied from the DL205 base. Use these currents when calculating the power budget for your system. The Auxiliary 24V Power Source mentioned in the table is a connection at the base terminal strip allowing you to connect to devices or DL205 modules that require 24VDC.

Bases	5V Current Supplied	Auxiliary 24VDC Current Supplied
D2-03B-1	2600 mA	300 mA
D2-04B-1	2600 mA	300 mA
D2-06B-1	2600 mA	300 mA
D2-09B-1	2600 mA	300 mA
D2-03BDC1-1	2600 mA	None
D2-04BDC1-1	2600 mA	None
D2-06BDC1-1	2600 mA	None
D2-09BDC1-1	2600 mA	None
D2-06BDC2-1	2600 mA	300 mA
D2-09BDC2-1	2600 mA	300 mA

Module Power Requirements

Use the power requirements shown on the next page to calculate the power budget for your system. If an External 24VDC power supply is required, the external 24VDC from the base power supply may be used as long as the power budget is not exceeded.

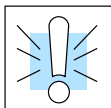
CPU's	5VDC Base Power Required	External Power Required	Combination Modules	5VDC Base Power Required	External Power Required
D2-230	120	0	D2-08CDR	200	0
D2-240	120	0	Specialty Modules, etc.		
D2-250-1	330	0	H2-PBC	530	0
D2-260	330	0	H2-ECOM	320	0
DC Input Modules			H2-ECOM-F	450	0
D2-08ND3	50	0	H2-ERM	320	0
D2-16ND3-2	100	0	H2-ERM-F	450	0
D2-32ND3(-2)	25	0	H2-EBC	320	0
AC Input Modules			H2-EBC-F	450	0
D2-08NA-1	50	0	H2-CTRIO	400	0
D2-08NA-2	100	0	D2-DCM	300	0
D2-16NA	100	0	D2-RMSM	200	0
DC Output Modules			D2-RSSS	150	0
D2-04TD1	60	20	D2-CTRINT	50	0
D2-08TD1(-2)	100	0	D2-08SIM	50	0
D2-16TD1-2	200	80	D2-CM	100	0
D2-16TD2-2	200	0	D2-EM	130	0
D2-32TD1(-2)	350	0	F2-CP128	235	0
AC Output Modules			F2-DEVNETS-1	160	0
D2-08TA	250	0	F2-SDS-1	160	0
F2-08TA	250	0			
D2-12TA	350	0			
Relay Output Modules					
D2-04TRS	250	0			
D2-08TR	250	0			
F2-08TRS	670	0			
F2-08TR	670	0			
D2-12TR	450	0			
Analog Modules					
F2-04AD-1(L)	50	18-30 VDC @ 80 mA max; (-L) 10-15VDC @ 90mA			
F2-04AD-2(L)	60	18-26.4 VDC @ 80 mA max; (-L) 10-15VDC @ 90mA			
F2-08AD-1	50	18-26.4 VDC @ 80 mA max			
F2-08AD-2	60	18-26.4 VDC @ 80 mA max			
F2-02DA-1(L)	40	18-30VDC @ 60mA; (L) 10-15VDC @ 70mA (add 20mA / loop)			
F2-02DA-2(L)	40	18-30 VDC @ 60 mA max; (-L) 10-15VDC @ 70mA			
F2-08DA-1	30	18-30VDC @ 50mA per channel (add 20mA / loop)			
F2-08DA-2	60	18-30 VDC @ 80 mA max			
F2-02DAS-1	100	18-30VDC @ 50mA per channel			
F2-02DAS-2	100	21.6-26.4 VDC @ 60 mA per channel			
F2-4AD2DA	60	18-26.4VDC @ 80mA; add 20mA / loop			
F2-04RTD	90	0			
F2-04THM	100	18-26.4 VDC @ 60 mA max			

Power Budget Calculation Example

The following example shows how to calculate the power budget for the DL205 system.

Base #	Module Type	5 VDC (mA)	Auxiliary Power Source 24 VDC Output (mA)
0			
Available Base Power	D2-09B-1	2600	300
CPU Slot	D2-260	+ 330	
Slot 0	D2-16ND3-2	+ 100	+ 0
Slot 1	D2-16NA	+ 100	+ 0
Slot 2	D2-16NA	+ 100	+ 0
Slot 3	F2-04AD-1	+ 50	+ 80
Slot 4	F2-02DA-1	+ 40	+ 60
Slot 5	D2-08TA	+ 250	+ 0
Slot 6	D2-08TD1	+ 100	+ 0
Slot 7	D2-08TR	+ 250	+ 0
Other			
Handheld Prog	D2-HPP	+ 200	+ 0
Total Power Required		1520	140
Remaining Power Available		2600-1520=1080	300 - 140 = 160

1. Use the power budget table to fill in the power requirements for all the system components. First, enter the amount of power supplied by the base. Next, list the requirements for the CPU, any I/O modules, and any other devices, such as the Handheld Programmer or the DV-1000 operator interface. Remember, even though the Handheld or the DV-1000 are not installed in the base, they still obtain their power from the system. Also, make sure you obtain any *external* power requirements, such as the 24VDC power required by the analog modules.
2. Add the current columns starting with Slot 0 and put the total in the row labeled "**Total power required**".
3. Subtract the row labeled "**Total power required**" from the row labeled "**Available Base Power**". Place the difference in the row labeled "**Remaining Power Available**".
4. If "**Total Power Required**" is greater than the power available from the base, the power budget will be exceeded. It will be unsafe to use this configuration and you will need to restructure your I/O configuration.



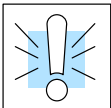
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Power Budget Calculation Worksheet

This blank chart is provided for you to copy and use in your power budget calculations.

Base #	Module Type	5 VDC (mA)	Auxiliary Power Source 24 VDC Output (mA)
0			
Available Base Power			
CPU Slot			
Slot 0			
Slot 1			
Slot 2			
Slot 3			
Slot 4			
Slot 5			
Slot 6			
Slot 7			
Other			
Total Power Required			
Remaining Power Available			

1. Use the power budget table to fill in the power requirements for all the system components. This includes the CPU, any I/O modules, and any other devices, such as the Handheld Programmer or the DV-1000 operator interface. Also, make sure you obtain any external power requirements, such as the 24VDC power required by the analog modules.
2. Add the current columns starting with Slot 0 and put the total in the row labeled **"Total power required"**.
3. Subtract the row labeled **"Total power required"** from the row labeled **"Available Base Power"**. Place the difference in the row labeled **"Remaining Power Available"**.
4. If **"Total Power Required"** is greater than the power available from the base, the power budget will be exceeded. It will be unsafe to use this configuration and you will need to restructure your I/O configuration.



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