

Power Supplies

Power Supplies

The CLICK PLC family offers two 24 VDC power supplies. They are identical except for the output current.

It is not mandatory to use one of these CLICK power supplies for the CLICK/CLICK PLUS PLC system. You can use any other 24 VDC power supply that AutomationDirect.com offers, including the PSP24-DC12-1 12 to 24 VDC converter shown below.

C0-00AC Power Supply

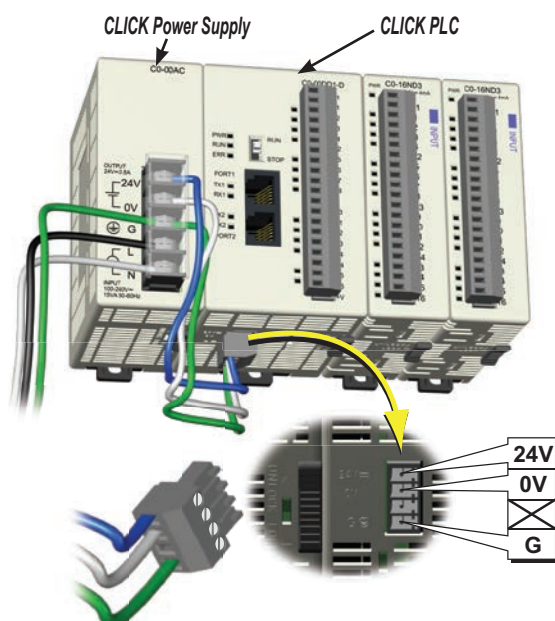
Limited auxiliary AC power supply allows you to power the 24 VDC CLICK C0 and C2 series PLCs with 100–240 VAC supply power. The 0.5A DC power supply is capable of controlling the PLC plus a limited configuration based on the power budget of each I/O module. The C0-00AC is a low-cost solution for applications requiring only minimal I/O and power consumption. This power supply will not support a fully-populated CLICK PLC system with all possible I/O module combinations.

C0-01AC Power Supply

Expanded auxiliary AC power supply allows you to power the 24 VDC CLICK C0 and C2 series PLCs with 100–240 VAC supply power. The 1.3A DC power supply is capable of supporting a fully-populated CLICK PLC system with all possible I/O module combinations, with no concerns for exceeding the power budget.

PSP24-DC12-1 DC-DC Converter

With this DC-DC converter you can operate the CLICK/CLICK PLUS PLC with 12 VDC input power.



24 VDC power is supplied to the PLC unit through wiring connected from the power supply output to the 4-pin 24 VDC input connector located on the bottom of the PLC unit.

C0-00AC



C0-01AC



CLICK 24 VDC Power Supply Ratings

Part Number	Output Current	Price
<u>C0-00AC</u>	0.5A	
<u>C0-01AC</u>	1.3A	

Power Supply Input Specifications

Part Number	C0-00AC	C0-01AC
Input Voltage Range	85–264 VAC	
Input Frequency	47–63 Hz	
Input Current (typical)	0.3A @ 100 VAC, 0.2A @ 200 VAC	0.9A @ 100 VAC, 0.6A @ 200 VAC
Inrush Current	30A	
Efficiency	80% typical	

Power Supply Output Specs

Part Number	C0-00AC	C0-01AC
Output Voltage Range	23–25 VDC	
Output Current	0.5A	1.3A
Ripple	200 mV p-p max (0–55 °C)	
Ripple Noise	300 mV p-p max (0–55 °C)	
Over Current Protection	@ 0.65A (automatic recovery)	@ 1.6A (automatic recovery)
Over Voltage Protection	@ 27.6V (clamped by Zener diode)	
Start-up Time	1000 ms max at rated input and load	
Hold-up Time	10 ms minimum at 85 VAC, I=max	

Power Supply General Specs

Part Number	C0-00AC	C0-01AC
Ambient Operating Temperature	32–131 °F [0–55 °C]	
Storage Temperature	-4 to +158 °F [-20 to +70 °C]	
Humidity	30–95%, non-condensing	
Vibration Resistance	JIS C60068-2-6, sine wave vibration	
Shock Resistance	JIS C60068-2-27	
Voltage Withstand	1500 VAC, 5 mA cutoff current	
Input-Output	1500 VAC, 5 mA cutoff current	
Input-Ground	500 VAC, 5 mA cutoff current	
Output-Ground	500 VAC, 5 mA cutoff current	
Insulation Resistance	10 MΩ minimum, 500 VDC	
Input-Output	10 MΩ minimum, 500 VDC	
Input-Ground	5 MΩ minimum, 500 VDC	
Output-Ground	5 MΩ minimum, 500 VDC	
Noise Immunity	FCC Class A, EN55022:1998 Class A	
Input/Output Interface	5P terminal block, Fujicon UF2362AX series or equivalent	
Agency Approvals	UL508, UL1604, EN61010-1 (IEC 1010-1), CAN/CSA E60079-15:02, JIS C0025	
Drawing Link	PDF	PDF
Weight	5.3 oz [150g]	6.0 oz [170g]

PSP24-DC12-1 DC-DC Converter Specs

Input Voltage Range	9.5–18 VDC
Input Power (no load)	1.0W max.
Startup Voltage	8.4 VDC
Undervoltage Shutdown	7.6 VDC
Output Voltage Range	24–28 VDC (adjustable)
Output Current	1.0A
Short Circuit Protection	Current limited at 110% typical
Drawing Link	PDF
Weight	7.5 oz [213g]



PSP24-DC12-1

Power Budgeting

Power Budgeting

There are two factors to consider when determining the power required to operate a CLICK PLC system. The first is the power required by the PLC and internal logic-side power provided through the PLC. This includes the CPU's own I/O, any connected I/O modules that are powered through the PLC expansion port, plus any device, such as a **C-more** Micro-Graphic panel, that is powered through one of the communications ports.

The second area is the power required by all externally-connected I/O devices. This should be viewed as the field-side power required. The field-side power is dependent on the voltage used for a particular input or output device as it relates to the wired I/O point and to the calculated load rating of the connected device.

It is strongly recommended that the power source for the logic side be separate from the power source for the field side to help eliminate possible electrical noise.

Power budgeting requires the calculation of the total current the 24 VDC power source needs to provide to CLICK's logic side. A separate calculation is required to determine the total current required for all devices operating from the field side of the PLC system.

Refer to the Power Budgeting example shown on the following page. The table shows required current for a CLICK PLUS PLC, two I/O modules, and a **C-more** Micro. Use the total amperage values to select a suitable power supply.



CLICK 24 VDC Power Supply
C0-00AC or C0-01AC



Other 24 VDC Power Supply
Example: PSP24-060S

Power Consumption for CLICK and CLICK PLUS PLC Units

PLC Current Consumption (mA)		
Part Number	Power Budget 24 VDC (Logic Side)	External 24 VDC (Field Side)
Basic PLC Units		
C0-00DD1-D	120	60
C0-00DD2-D	120	0
C0-00DR-D		
C0-00AR-D		
Standard PLC Units		
C0-01DD1-D	140	60
C0-01DD2-D	140	0
C0-01DR-D		
C0-01AR-D		
Analog PLC Units		
C0-02DD1-D	140	60
C0-02DD2-D	140	0
C0-02DR-D		
Ethernet Basic PLC Units		
C0-10DD1E-D	120	60
C0-10DD2E-D	120	0
C0-10DRE-D		
C0-10ARE-D		
Ethernet Standard PLC Units		
C0-11DD1E-D	140	60
C0-11DD2E-D	140	0
C0-11DRE-D		
C0-11ARE-D		

PLC Current Consumption (mA)		
Part Number	Power Budget 24 VDC (Logic Side)	External 24 VDC (Field Side)
Ethernet Analog PLC Units		
C0-12DD1E-D	140	60
C0-12DD2E-D		0
C0-12DRE-D	160	
C0-12ARE-D		
C0-12DD1E-1-D	140	60
C0-12DD2E-1-D	160	0
C0-12DRE-1-D		
C0-12ARE-1-D		
C0-12DD1E-2-D	140	60
C0-12DD2E-2-D	160	0
C0-12DRE-2-D		
C0-12ARE-2-D		
CLICK PLUS PLCs		
C2-01CPU	110	0
C2-01CPU-2	120	
C2-02CPU	105	
C2-02CPU-2	115	
C2-03CPU	130	
C2-03CPU-2	140	

Power Consumption for CLICK PLUS Option Slot Modules

CLICK PLUS Option Slot Modules Current Consumption (mA)		
Part Number	Power Budget 24 VDC (Logic Side)	External 24 VDC (Field Side)
Option Slot I/O Modules		
C2-14D1	50	60
C2-14D2	50	0
C2-14DR	75	0
C2-14AR	75	0
C2-14TTL	220	0
C2-08D1-4VC	80	60
C2-08D2-4VC	80	0
C2-08DR-4VC	100	0
C2-08AR-4VC	100	0
C2-08D1-6C	80	60
C2-08D2-6C	80	0
C2-08DR-6C	100	0
C2-08AR-6C	100	0
C2-08D1-6V	80	60
C2-08D2-6V	80	0
C2-08DR-6V	100	0
C2-08AR-6V	100	0
Option Slot Intelligent Modules		
C2-DCM	60	0
C2-NRED	125	0
C2-OPCUA	125	0

Power Budgeting

Power Consumption for CLICK Stackable I/O Modules

I/O Module Current Consumption (mA)		
Part Number	Power Budget 24 VDC (logic side)	External 24 VDC (field side)
Discrete Input Modules		
C0-08SIM	50	0
C0-08ND3	30	0
C0-08ND3-1	30	0
C0-16ND3	40	0
C0-08NE3	30	0
C0-16NE3	40	0
C0-08NA	30	0
Discrete Output Modules		
C0-08TD1	50	15
C0-08TD2	50	0
C0-16TD1	80	100
C0-16TD2	80	0
C0-08TA	80	0
C0-04TRS	100	0
C0-04TRS-10	120	0
C0-08TR	100	0
C0-08TR-3	90	0

I/O Module Current Consumption (continued) (mA)		
Part Number	Power Budget 24 VDC (logic side)	External 24 VDC (field side)
Discrete Combo I/O Modules		
C0-16CDD1	80	50
C0-16CDD2	80	0
C0-08CDR	80	0
Analog Input Modules		
C0-04AD-1	20	65
C0-04AD-2	23	65
C0-04POT	30	0
C0-04RTD	25	0
C0-04THM	25	0
Analog Output Modules		
C0-04DA-1	20	145
C0-04DA-2	20	85
Analog Combo I/O Modules		
C0-4AD2DA-1	25	75
C0-4AD2DA-2	20	65
C-more Micro-Graphic Panel		
Monochrome only	90	0

System Configuration

PLC Name: (Max. 24 characters)

☐ Start-up I/O Config Check

CD-01AC CPU C2-03CPU C2-14D1 C0-16ND3 C0-08NE3 C0-16NE3 C0-16TD1 C0-04TRS C0-08TR

R/S CPU Slot I/O 1 I/O 2 I/O 3 I/O 4 I/O 5 I/O 6

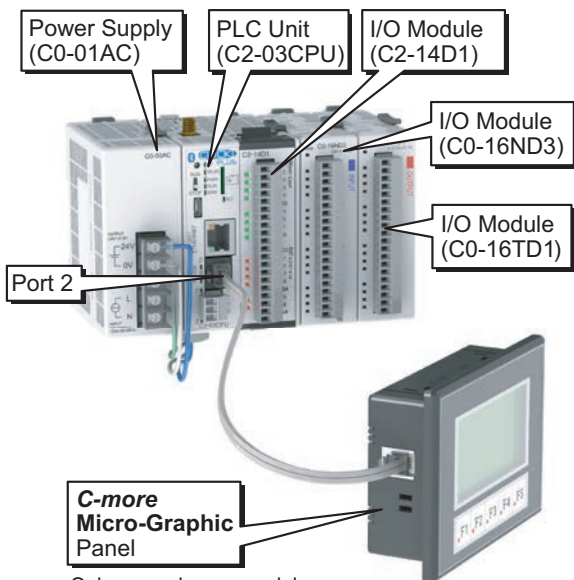
System

Input Total(pI)=48 Output Total(pO)=24 Power Budget(mA)= 610

Name	P/S	CPU	Slot	I/O 1	I/O 2	I/O 3	I/O 4	I/O 5	I/O 6	I/O 7	I/O 8
Module Type	C0-01AC	C2-03CPU	C2-14D1	C0-16ND3	C0-08NE3	C0-16NE3	C0-16TD1	C0-04TRS	C0-08TR		
Input(X)			X001-X008	X101-X116	X201-X208	X301-X316					
Output(Y)			Y001-Y006				Y401-Y416	Y501-Y504	Y601-Y608		
Power(mA)	+1300	-140	-80	-40	-20	-40	-80	-100	-100		
	Change...	Change...	Change...	Change...	Change...	Change...	Change...	Change...	Change...	Select...	Select...
			Remove	Remove	Remove	Remove	Remove	Remove	Remove	Remove	Remove
			Config...	Config...	Config...	Config...	Config...	Config...	Config...	Config...	Config...

☒ Assign Nicknames & Comments when Analog I/O Used

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Only monochrome models
can be powered from port 2.

Power Budgeting Example

Current Consumption (mA) Example		
Part Number	Power Budget 24 VDC (logic side)	External 24 VDC (field side)
C2-03CPU	130	0
C2-14D1	50	60
C0-16ND3	40	0
C0-16TD1	80	100
C-more Micro	90	0
Total:	390	160 *

* Add in calculated load of connected I/O devices.