

# Power Supplies

## Power Supplies

The CLICK PLC family offers two 24VDC 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 24VDC power supply that AutomationDirect.com offers, including the PSP24-DC12-1 12 to 24 VDC converter shown below.

### CO-00AC Power Supply

Limited auxiliary AC power supply allows you to power the 24VDC CLICK C0 and C2 series PLCs with 100–240 VAC supply power. The 0.5 A DC power supply is capable of controlling the PLC plus a limited configuration based on the power budget of each I/O module. The CO-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.

### CO-01AC Power Supply

Expanded auxiliary AC power supply allows you to power the 24VDC CLICK C0 and C2 series PLCs with 100–240 VAC supply power. The 1.3 A 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.

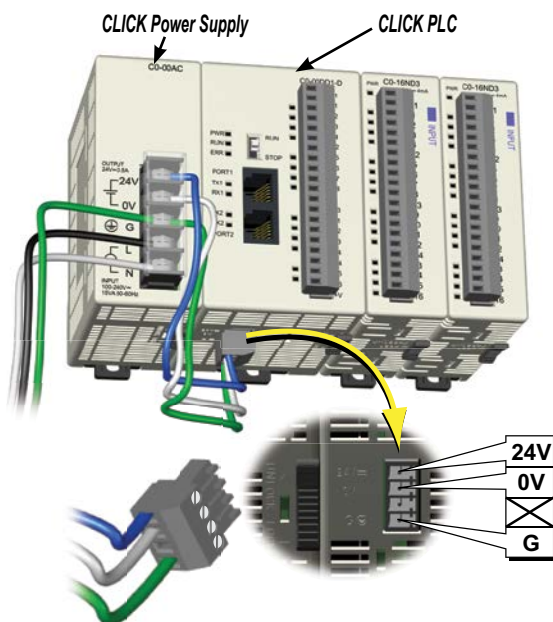
### PSP24-DC12-1 DC-DC Converter

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

CO-00AC



CO-01AC



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



PSP24-DC12-1

## CLICK 24VDC Power Supply Ratings

Part Number	Output Current	Price
CO-00AC	0.5 A	\$51.00
CO-01AC	1.3 A	\$63.00

## Power Supply Input Specifications

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

## Power Supply Output Specs

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

## Power Supply General Specs

Part Number	CO-00AC	CO-01AC
Ambient Operating Temperature	32–131°F [0–55°C]	
Storage Temperature	–4–158°F [–20–70°C]	
Humidity	30–95%, non-condensing	
Vibration Resistance	JIS C60068-2-6, sine wave vibration	
Shock Resistance	JIS C60068-2-27	
Voltage Withstand	1500VAC, 5mA cutoff current	
Input-Output	1500VAC, 5mA cutoff current	
Input-Ground	500VAC, 5mA cutoff current	
Output-Ground	500VAC, 5mA cutoff current	
Insulation Resistance	10MΩ minimum, 500VDC	
Input-Output	10MΩ minimum, 500VDC	
Input-Ground	5MΩ minimum, 500VDC	
Output-Ground	5MΩ minimum, 500VDC	
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	<a href="#">PDF</a>	<a href="#">PDF</a>
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)	1.0 W max.
Startup Voltage	8.4 VDC
Undervoltage Shutdown	7.6 VDC
Output Voltage Range	24–28 VDC (adjustable)
Output Current	1.0 A
Short Circuit Protection	Current limited at 110% typical
Drawing Link	<a href="#">PDF</a>
Weight	7.5 oz [213g]

# 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 24VDC 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 24VDC Power Supply**  
C0-00AC or C0-01AC



**Other 24VDC Power Supply**  
Example: PSP24-060S

## Power Consumption for CLICK and CLICK PLUS PLC Units

## Power Consumption for CLICK PLUS Option Slot Modules

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

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

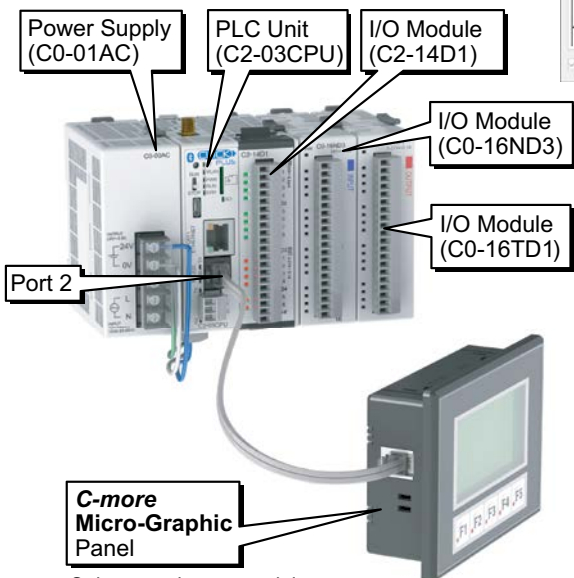
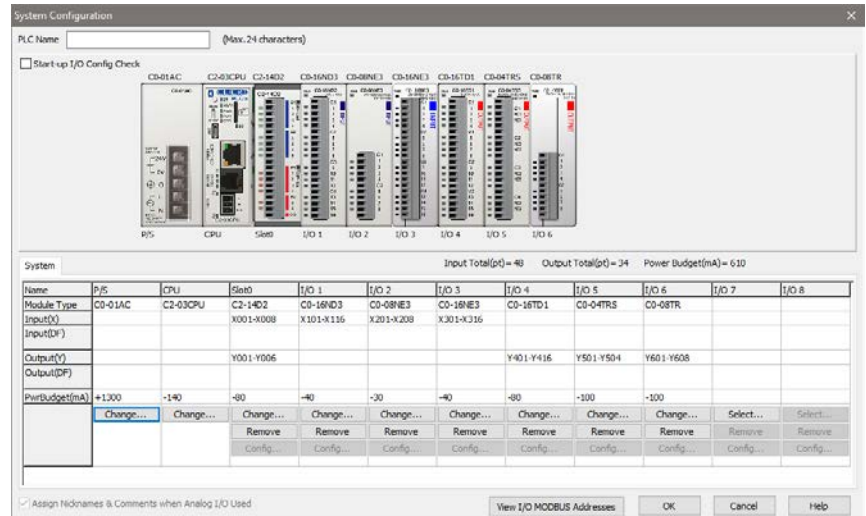
CLICK PLUS Option Slot Modules Current Consumption (mA)		
Part Number	Power Budget 24VDC (Logic Side)	External 24VDC (Field Side)
<b>Option Slot I/O Modules</b>		
C2-14D1	50	60
C2-14D2	50	0
C2-14DR	75	0
C2-14AR	75	0
C2-08D1-4VC	80	60
C2-08D2-4VC	80	0
C2-08DR-4VC	100	0
C2-08AR-4VC	100	0
C2-08D1-6C	80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

# Power Budgeting

## Power Consumption for CLICK Stackable I/O Modules

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

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



Only monochrome models can be powered from port 2.

### Power Budgeting Example

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

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