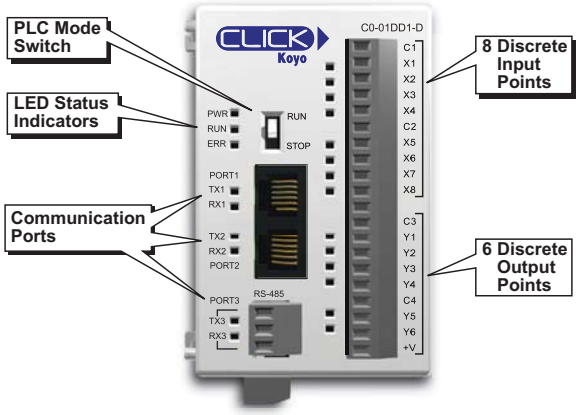
2

Standard CPU Modules

The Standard CLICK CPU modules are available with different combinations of built-in I/O types (i.e. DC input/DC output, DC input/relay output, and AC input/relay output). With the 14 built-in I/O points (8 inputs/6 outputs), the CPU can be used as a ready-to-go PLC control system without any additional I/O modules. The CPU module just needs 24 VDC, but it can be expanded in the future if the need arises.

They also have an RS-485 port for Modbus and ASCII communications, and the battery backup feature which will retain the data in SRAM for 5 years.



Built-in I/O (Standard CPUs)

There are four different configurations of I/O types available for the Standard CLICK CPU modules. The table below lists the part numbers showing the various I/O types.

Standard CLICK CPUs			
Part Number	**Discrete Input Type**	**Discrete Output Type**	**External Power**
C0-01DD1-D	8 DC (sink/source)	6 DC (sink)	24 VDC (required for all CPUs)
C0-01DD2-D		6 DC (source)	
C0-01DR-D		6 Relay	
C0-01AR-D	8 AC		

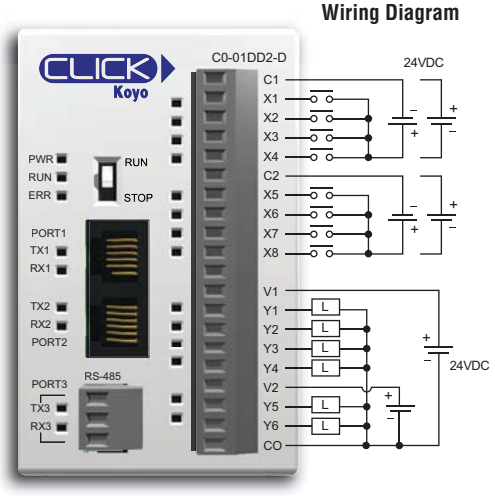
Memory Types

The following is the list of the memory types that the CLICK PLC system supports. See the memory map later in this chapter.

Memory Type	Symbol	Data Type	S/W Icon	Definition
Input Point	X	Bit	B	The Discrete Input points are represented by the "X" symbol.
Output Point	Y	Bit	B	The Discrete Output points are represented by the "Y" symbol.
Control Relay	C	Bit	B	The Control Relay bits are represented by the "C" symbol. These internal bits are typically used for ladder program control. They do not represent any real world inputs or outputs.
Timer	T	Bit	B	The Timers are represented by the "T" symbol. The Timer status bit is used to indicate when the Current Value of the timer equals its Preset Value.
Counter	CT	Bit	B	The Counters are represented by the "CT" symbol. The Counter status bit is used to indicate when the Current Value of the counter equals its Preset Value.
System Control Relay	SC	Bit	B	The internal System Control Relays, represented by the "SC" symbol, are pre-defined bits which represent the status of specific system functions.
Data Register	DS	Integer	I	Single word integer data registers are represented by the "DS" symbol.
Data Register	DD	Integer2	I2	Double word integer data registers are represented by the "DD" symbol.
Data Register	DH	HEX	H	Single word Hex data registers are represented by the "DH" symbol.
Data Register	DF	Floating Point	F	Data Floating Point registers are IEEE format Real number values represented by the "DF" symbol as 32 bit words.
Input Register	XD	HEX	H	The Input Registers, represented by the "XD" symbol, contain groups of Discrete Input points in a 16 bit word format.
Output Register	YD	HEX	H	The Output Registers, represented by the "YD" symbol, contain groups of Discrete Output points in a 16 bit word format.
Timer Register	TD	Integer	I	The Timer Registers, represented by the "TD" symbol, contain the corresponding Timer's accumulative value in a 16 bit data register.
Counter Register	CTD	Integer2	I2	The Counter Registers, represented by the "CTD" symbol, contain the corresponding Counter's accumulative value in a 32 bit data register.
System Data Register	SD	Integer	I	The internal System Data Registers, represented by the "SD" symbol, are pre-defined words which represent the status of specific system functions.
Text	TXT	Text	T	The Text data registers, represented by the "TXT" symbol, are used to store and manipulate ASCII text data.

C0-01DD2-D – 8 DC Input/6 Sourcing DC Output Micro PLC

Wiring Diagram

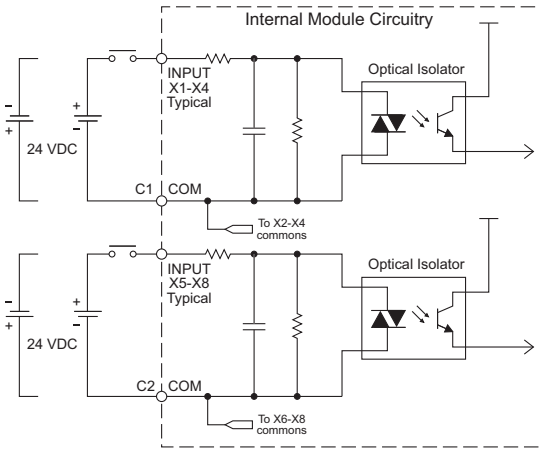


C0-01DD2-D Built-in I/O Specifications - Inputs	
Inputs per Module	8 (Sink/Source)
Operating Voltage Range	24 VDC
Input Voltage Range	21.6 - 26.4 VDC
Input Current	X1-2: Typ 5 mA @ 24 VDC X3-8: Typ 4 mA @ 24 VDC
Maximum Input Current	X1-2: 6.0 mA @ 26.4 VDC X3-8: 5.0 mA @ 26.4 VDC
Input Impedance	X1-2: 4.7 kΩ @ 24 VDC X3-8: 6.8 kΩ @ 24 VDC
ON Voltage Level	X1-2: > 19 VDC X3-8: > 19 VDC
OFF Voltage Level	X1-2: < 4 VDC X3-8: < 7 VDC
Minimum ON Current	X1-2: 4.5 mA X3-8: 3.5 mA
Maximum OFF Current	X1-2: 0.1 mA X3-8: 0.5 mA
OFF to ON Response	X1-2: Typ 5 µs Max 20 µs X3-8: Typ 2 ms Max 10 ms
ON to OFF Response	X1-2: Typ 5 µs Max 20 µs X3-8: Typ 3 ms Max 10 ms
Status Indicators	Logic Side (8 points, green LED)
Commons	2 (4 points/common) Isolated

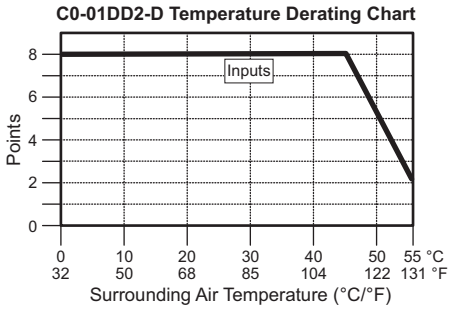
NOTE: When using Standard CPUs, you must use CLICK programming software version V1.20 or later.

General Specifications	
Current Consumption at 24VDC	140 mA
Terminal Block Replacement Part No.	C0-16TB
Weight	5.0 oz (140 g)

Equivalent Input Circuit



C0-01DD2-D Temperature Derating Chart



Wiring Guidelines

Power Input Wiring to CLICK Power Supply

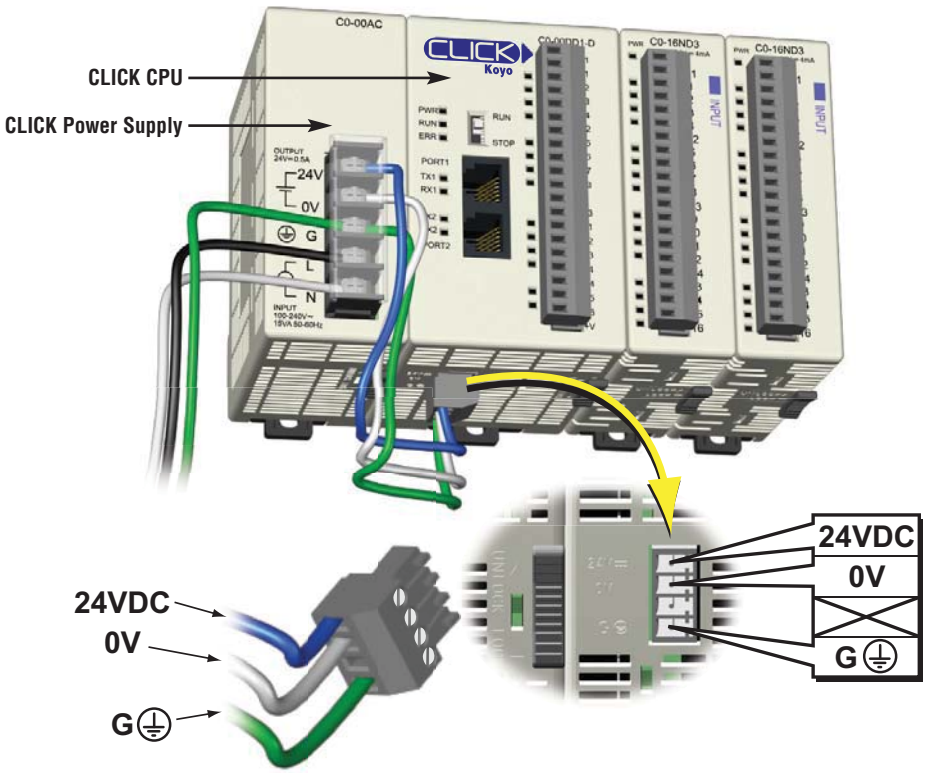
Connect the AC power source input wiring to the Click power supply (the Click power supply voltage and current requirements are listed in chapter 2). If you are not using a CLICK power supply, be sure to meet that supply's requirements.

Do not apply power at this time. Observe all precautions stated earlier in this manual.

Warning: Once the power wiring is connected, secure the terminal block cover in the closed position. When the cover is open there is a risk of electrical shock if you accidentally touch the connection terminals or power wiring.

Power Input Wiring to Click CPU

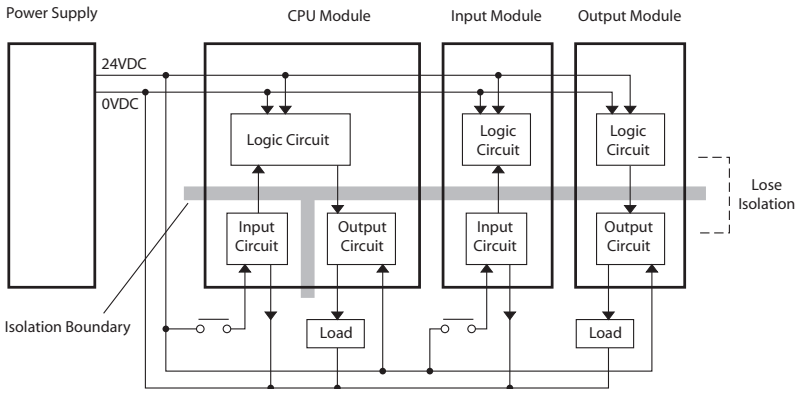
Connect the 24 VDC power source input wiring to the 4-pin 24 VDC input connector located on the bottom panel of the Click PLC. Do not apply power at this time. Observe all precautions stated earlier in this manual.



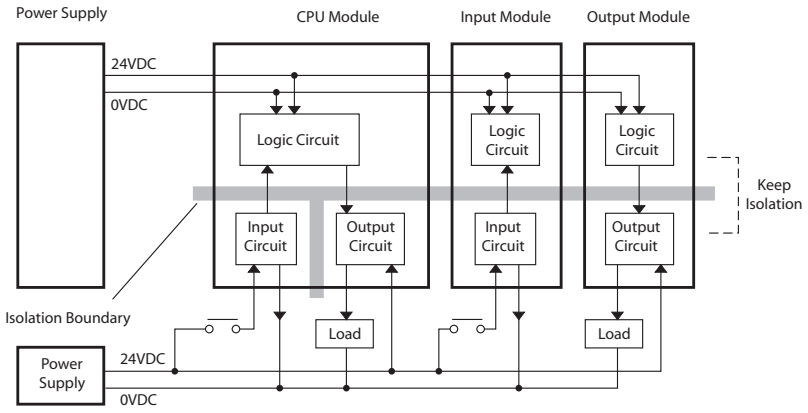
Powering I/O Circuits

In most applications, it will be necessary to power the input devices from one power source, and to power output loads from another source. Loads often require high-energy AC power, while input sensors use low-energy DC. If a machine operator is likely to come in close contact with input wiring, then safety reasons also require isolation from high-energy output circuits.

For the DC input/output circuits, you can use the same power source as the CPU module (and I/O modules). However, you lose the isolation between the logic circuits and the input/output circuits. (For AC input/output circuits, you don't need to worry about sharing the 24VDC.)



To keep the isolation between the logic circuits and the input/output circuits, we recommend using another power supply for the DC input and output circuits.



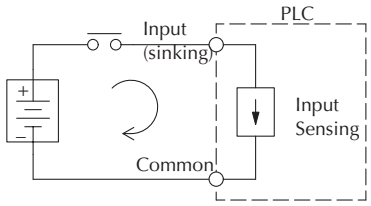
Sinking/Sourcing Concepts

Before wiring field devices to the PLC I/O, it's necessary to have a basic understanding of sinking and sourcing concepts. Use of these terms occurs frequently in input or output circuit discussions. The purpose of this section is to explain the terms. The short definitions are as follows:

Sinking = Path to supply ground (–) or switching ground

Sourcing = Path to supply source (+) or switching +V

These terms only apply to DC circuits, not AC circuits. Input and output points that are either sinking or sourcing can conduct current in only one direction. This means it is possible to wire the external supply and field device to the I/O point with current trying to flow in the wrong direction, in which case the circuit will not operate.



The diagram on the left shows a sinking PLC input. To properly connect the external supply, connect it so the input provides a path to ground (–). Start at the PLC input terminal, follow through the input sensing circuit, exit at the common terminal, and connect the supply (–) to the common terminal.

The switch between the supply (+) and the input completes the circuit. Current flows in the direction of the arrow when the switch is closed. By applying the circuit principle above to the four possible combinations of input/output sinking/sourcing types, we have the four circuits as shown below.