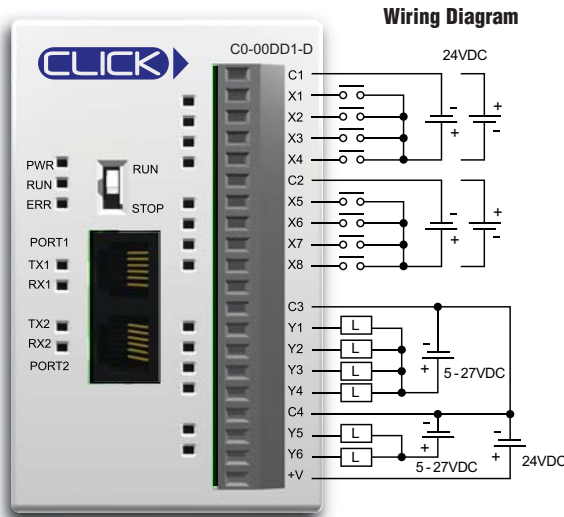


Basic CPU Module Specifications

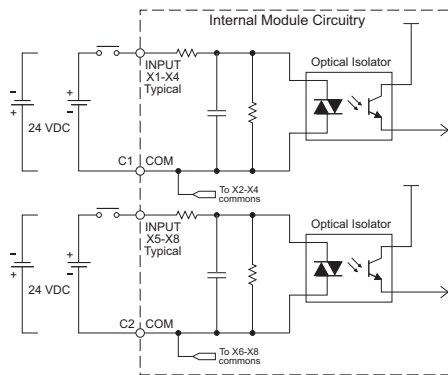
C0-00DD1-D <---->

8 DC Inputs/6 Sinking DC Outputs Micro PLC

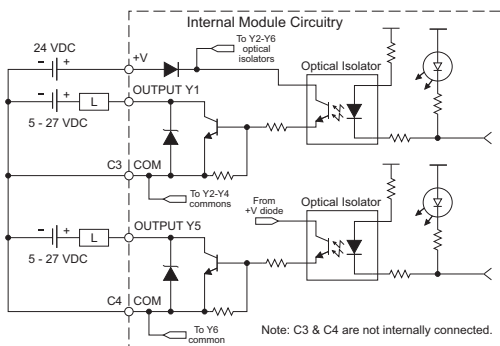
CLICK PLC CPU, 8 DC input/6 Sinking DC output, 8K steps total program memory, Ladder Logic programming, built-in RS232C programming port and additional RS232C Modbus RTU/ASCII communications port (configurable up to 115200 baud). Inputs: 8 DC inputs, 24 VDC sink/source, 2 commons, isolated. Outputs: 6 DC outputs, 5-27 VDC sinking, 0.1 A/pt, 2 commons, isolated. Removable terminal block included.



Equivalent Input Circuit



Equivalent Output Circuit



C0-00DD1-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 |

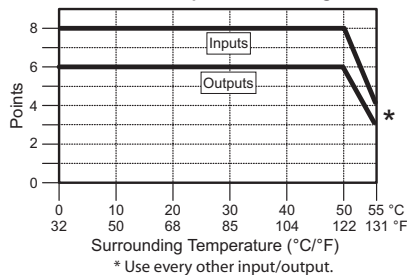
C0-00DD1-D Built-in I/O Specifications - Outputs

| | |
|-----------------------------------|--|
| Outputs per Module | 6 (Sink) |
| Operating Voltage Range | 5-27 VDC |
| Output Voltage Range | 4-30 VDC |
| Maximum Output Current | 0.1 A/point; C3: 0.4 A/common, C4: 0.2 A/common |
| Minimum Output Current | 0.2 mA |
| Maximum Leakage Current | 0.1 mA @ 30.0 VDC |
| On Voltage Drop | 0.5 VDC @ 0.1 A |
| Maximum Inrush Current | 150 mA for 10 ms |
| OFF to ON Response | Y1: typ 5 μs; max 20 μs Y2-6: < 0.5 ms |
| ON to OFF Response | Y1: typ 5 μs; max 20 μs Y2-6: < 0.5 ms |
| Status Indicators | Logic Side (6 points, red LED) |
| Commons | 2 (4 points/com & 2 points/com) Isolated |
| External DC Power Required | 20-28 VDC Maximum @ 60 mA (All Points On) |

General Specifications

| | |
|--|----------------|
| Current Consumption at 24VDC | 120 mA |
| Terminal Block Replacement Part No. | C0-16TB |
| Weight | 5.0 oz (140 g) |

C0-00DD1-D Temperature Derating Chart



ZipLink Pre-Wired PLC Connection Cables and Modules



ZL-RTB20 20-pin feed-through connector module

20-pin connector cable
ZL-C0-CBL20 (0.5 m length)
ZL-C0-CBL20-1 (1.0 m length)
ZL-C0-CBL20-2 (2.0 m length)

CLICK Specifications

General Specifications For All CLICK PLC Products

These general specifications apply to all CLICK CPUs, optional I/O modules, and optional power supply products. Please refer to the appropriate I/O temperature derating charts under both the CPU and I/O module specifications to determine best operating conditions based on the ambient temperature of your particular application.

| General Specifications | |
|---------------------------------------|--|
| Power Input Voltage Range | 20-28 VDC |
| Maximum Power Consumption | 5 W (No 5 V use from communication port) |
| Maximum Inrush Current | 30 A (less than 1ms) |
| Acceptable External Power Drop | Max 10 ms |
| Operating Temperature | 32°F to 131°F (0°C to 55°C), IEC 60068-2-14 (Test Nb, Thermal Shock) |
| Storage Temperature | -4°F to 158°F (-20°C to 70°C) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock) |
| Ambient Humidity | 30% to 95% relative humidity (non-condensing) |
| Environmental Air | No corrosive gases. Environmental pollution level is 2 (UL840) |
| Vibration | MIL STD 810C, Method 514.2, EC60068-2-6 JIS C60068-2-6 (Sine wave vibration test) |
| Shock | MIL STD 810C, Method 516.2, IEC60068-2-27, JIS C60068-2-27 |
| Noise Immunity | Comply with NEMA ICS3-304, Impulse noise 1µs, 1000V EN61000-4-2 (ESD), EN61000-4-3 (RFI), EN61000-4-4 (FTB) EN61000-4-5 (Surge), EN61000-4-6 (Conducted) EN61000-4-8 (Power frequency magnetic field immunity) RFI: No interference measured at 150, 450 MHz (5w/15cm) |
| Emissions | EN55011:1998 Class A |
| Agency Approvals | UL508 (File No. E157382, E316037); CE (EN61131-2) |
| Other | RoHS instruction conformity |

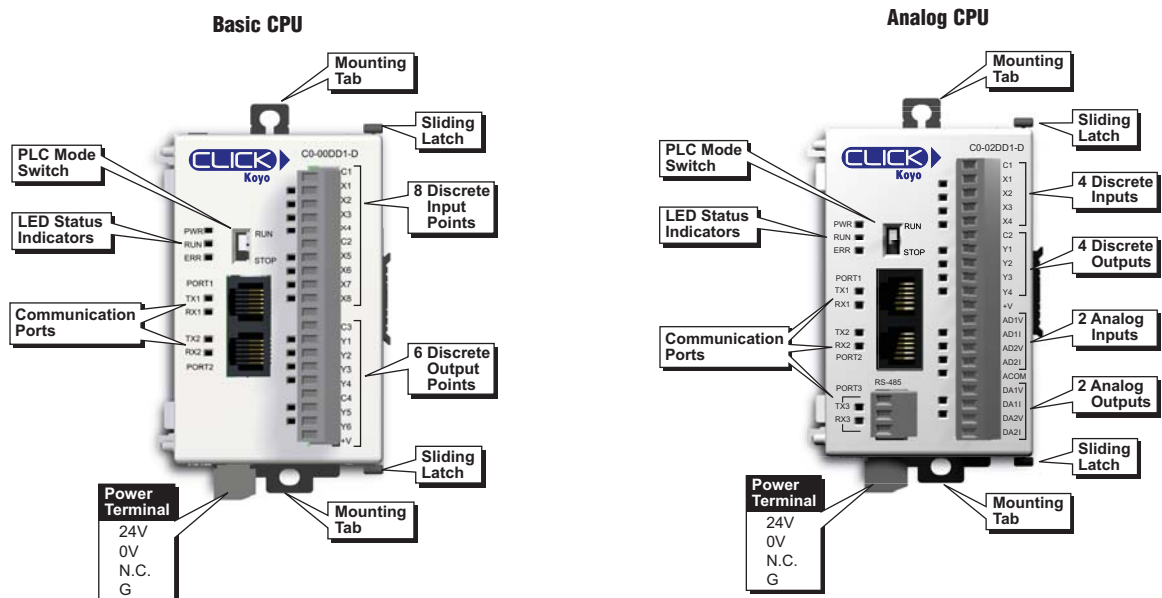
CPU Module Specifications

These specifications apply to all the CPU modules.

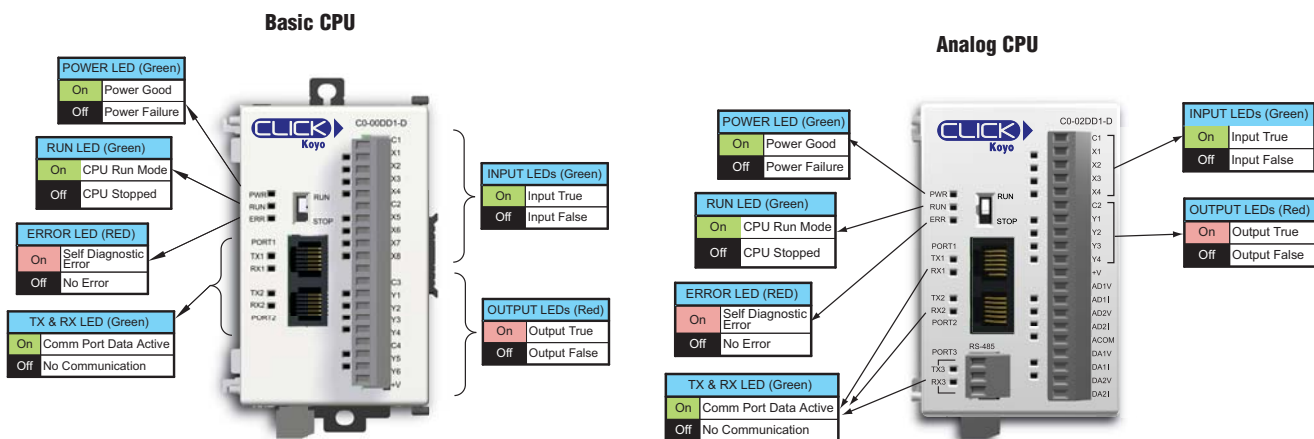
| CPU Module Specifications | | |
|--|--|-----------------------------------|
| | Basic CPU | Analog CPU |
| Control Method | Stored Program/Cyclic execution method | |
| I/O Numbering System | Fixed in Decimal | Fixed in Decimal |
| Ladder Memory (steps) | 8000 | 8000 |
| Total Data Memory (words) | 8000 | 8000 |
| Contact Execution (boolean) | < 0.6 us | < 0.6 us |
| Typical Scan (1k boolean) | 1-2 ms | 1-2 ms |
| RLL Ladder Style Programming | Yes | Yes |
| Run Time Edits | No | No |
| Scan | Variable / fixed | Variable / fixed |
| CLICK Programming Software for Windows | Yes | Yes |
| Built-in Communication Ports | Yes (two RS-232 ports) | Yes (2 RS-232 and 1 RS-485 ports) |
| FLASH Memory | Standard on CPU | Standard on CPU |
| Built-in Discrete I/O points | 8 inputs, 6 outputs | 4 inputs, 4 outputs |
| Built-in Analog I/O Channels | No | 2 inputs, 2 outputs |
| Number of Instructions Available | 21 | 21 |
| Control Relays | 2000 | 2000 |
| System Control Relays | 1000 | 1000 |
| Timers | 500 | 500 |
| Counters | 250 | 250 |
| Interrupt | Yes (external: 8 / timed: 4) | Yes (external: 4 / timed: 4) |
| Subroutines | Yes | Yes |
| For/Next Loops | Yes | Yes |
| Math (Integer and Hex) | Yes | Yes |
| Drum Sequencer Instruction | Yes | Yes |
| Internal Diagnostics | Yes | Yes |
| Password Security | Yes | Yes |
| System Error Log | Yes | Yes |
| User Error Log | No | No |
| Memory Backup | Super Capacitor | Super Capacitor + Battery |
| Battery Backup | No | Yes (battery part no. D2-BAT-1) |
| Calendar/Clock | No | Yes |
| I/O Terminal Block Replacement | ADC p/n C0-16TB | ADC p/n C0-16TB |
| Communication Port & Terminal Block Replacement | N/A | ADC p/n C0-03TB |
| 24 VDC Power Terminal Block Replacement | ADC p/n C0-4TB | ADC p/n C0-4TB |

CLICK Specifications

CPU Features

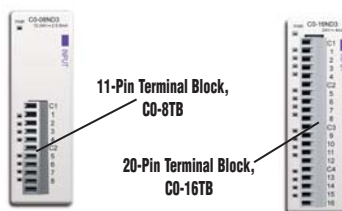


CPU LED Status Indicators



I/O Terminal Block Specifications for CPUs and I/O Modules

| 11-pin Terminal Block Specifications | |
|--------------------------------------|--------------------------|
| Connector Type | Pluggable Terminal Block |
| Number of Pins | 11 pt |
| Pitch | 3.50 mm |
| Wire Range | 28-16 AWG |
| Wire Strip Length | 7 mm |
| Screw Size | M2.0 |
| Screw Torque | 2.0 to 2.2 lb-inch |
| ADC Part Number | CO-8TB |



| 20-pin Terminal Block Specifications | |
|--------------------------------------|--------------------------|
| Connector Type | Pluggable Terminal Block |
| Number of Pins | 20 pt |
| Pitch | 3.50 mm |
| Wire Range | 28-16 AWG |
| Wire Strip Length | 7 mm |
| Screw Size | M2.0 |
| Screw Torque | 2.0 to 2.2 lb-inch |
| ADC Part Number | CO-16TB |

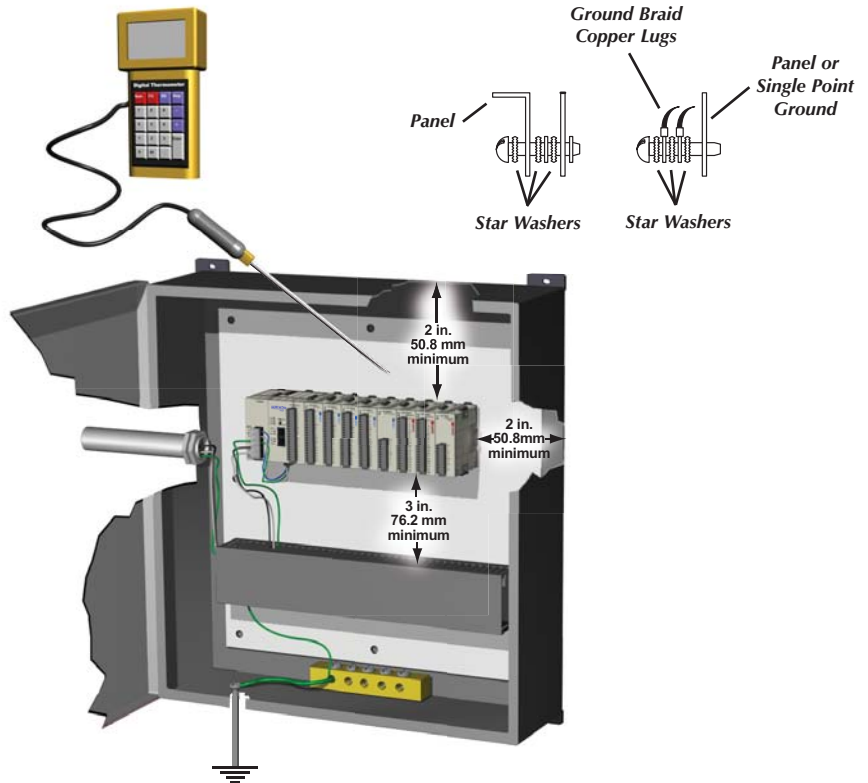
Product Dimensions and Installation

It is important to understand the installation requirements for your CLICK system. Your knowledge of these requirements will help ensure that your system operates within its environmental and electrical limits.

Plan for Safety

This catalog should never be used as a replacement for the user manual.

You can purchase, download free, or view online the user manuals for these products. Manual C0-USER-M is the user manual for the CLICK PLC. This user manual contains important safety information that must be followed. The system installation should comply with all appropriate electrical codes and standards.

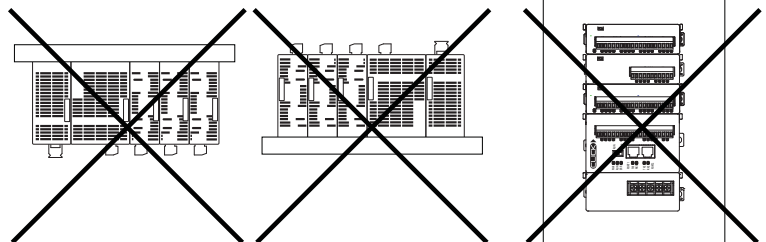
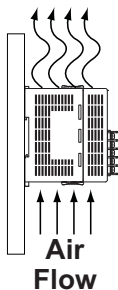


NOTE: THERE IS A MINIMUM CLEARANCE REQUIREMENT OF 2 INCHES (51 MM) BETWEEN THE CLICK PLC AND THE PANEL DOOR OR ANY DEVICES MOUNTED IN THE PANEL DOOR. THE SAME CLEARANCE IS REQUIRED BETWEEN THE PLC AND ANY SIDE OF THE ENCLOSURE. A MINIMUM CLEARANCE OF 3 INCHES (76 MM) IS REQUIRED BETWEEN THE PLC AND A WIREWAY OR ANY HEAT PRODUCING DEVICE.



Mounting Orientation

CLICK PLCs must be mounted properly to ensure ample airflow for cooling purposes. It is important to follow the unit orientation requirements and to verify that the PLC's dimensions are compatible with your application. Notice particularly the grounding requirements and the recommended cabinet clearances.

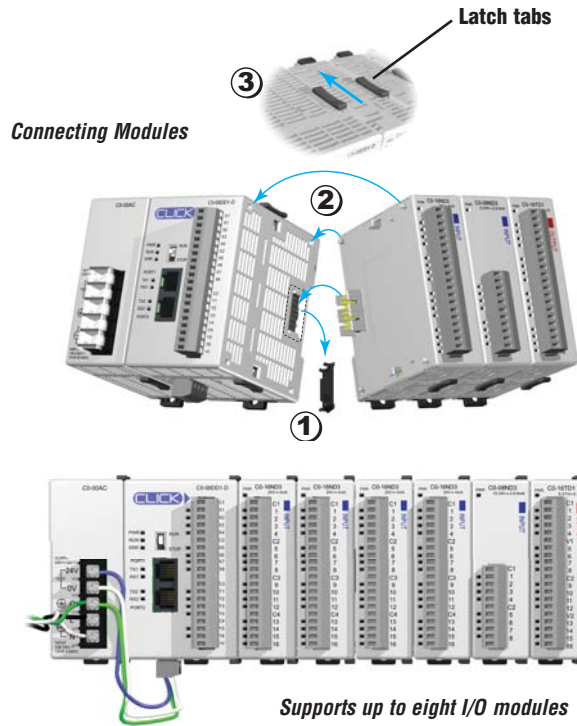


Product Dimensions and Installation

Connecting the Modules Together

CLICK CPUs, I/O modules and power supplies connect together using the extension ports that are located on the side panels of the modules (no PLC backplane/base required).

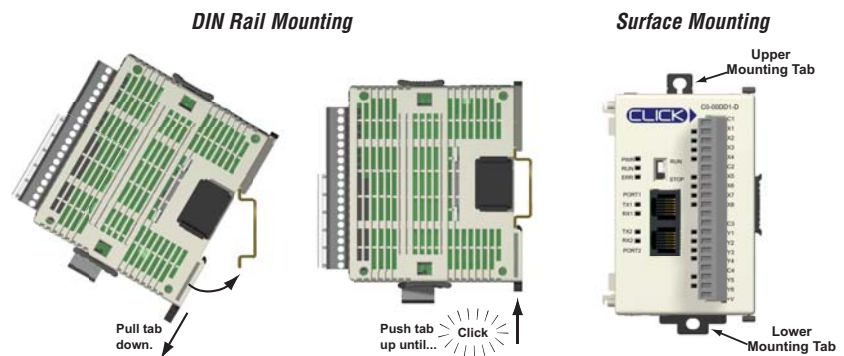
1. Remove extension port covers and slide the latch tabs forward.
2. Align the module pins and connection plug, and press the I/O module onto the right side of the CPU.
3. Slide the latch tabs backward to lock the modules together.



Mounting

The CLICK PLC system, which includes the CLICK power supplies, CPU modules, and I/O modules, can be mounted in one of two ways.

1. DIN rail mounted
2. Surface mounted using the built-in upper and lower mounting tabs.



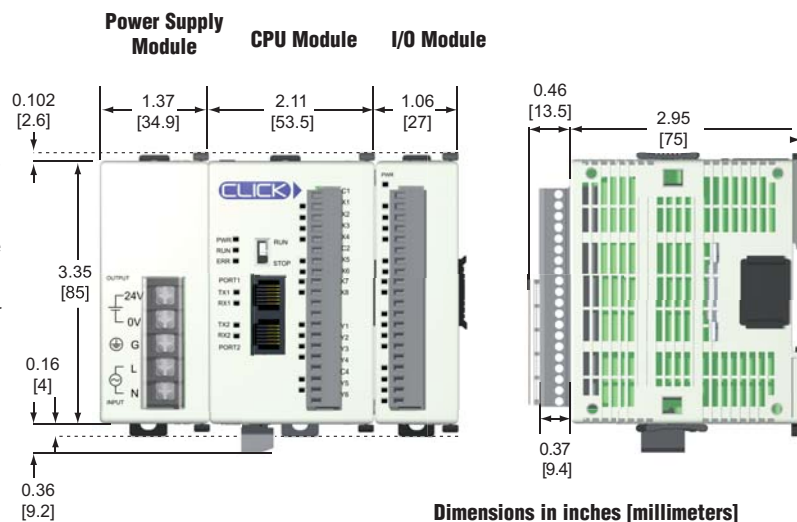
Unit Dimensions

These diagrams show the outside dimensions of the CLICK power supply, CPU, and I/O modules. The CLICK PLC system is designed to be mounted on standard 35mm DIN rail, or it can be surface mounted.

Allow proper spacing from other components within an enclosure.

Maximum system:

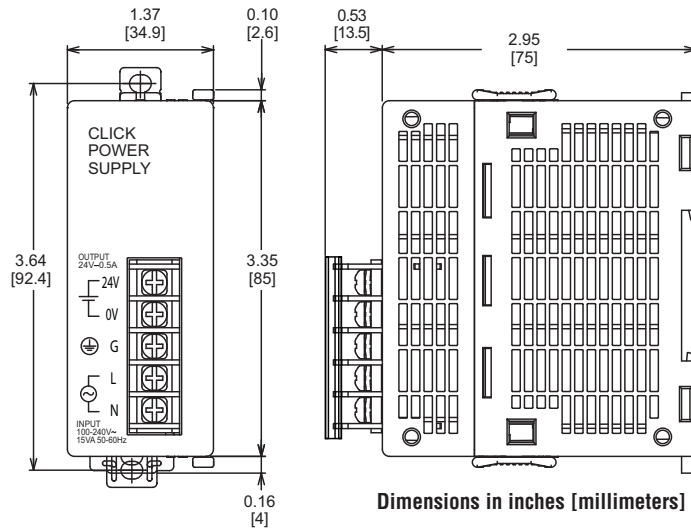
Power Supply + CPU + 8 I/O modules.



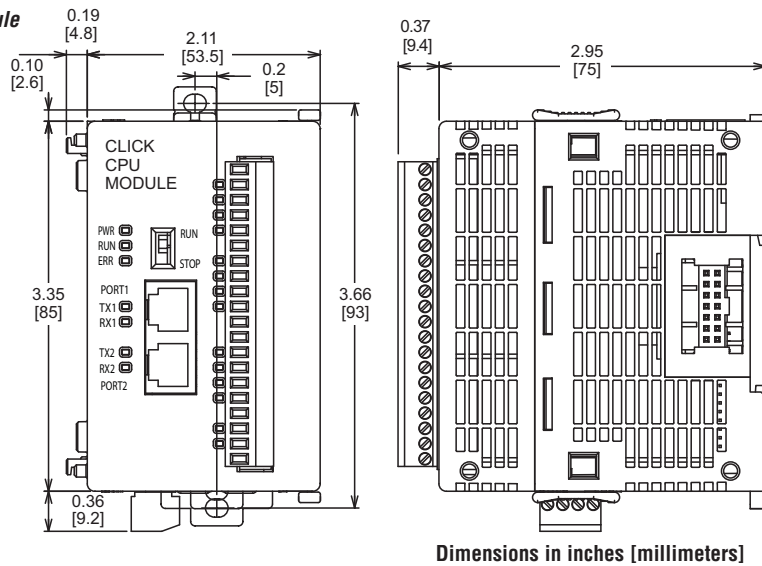
Product Dimensions and Installation

Unit Dimensions

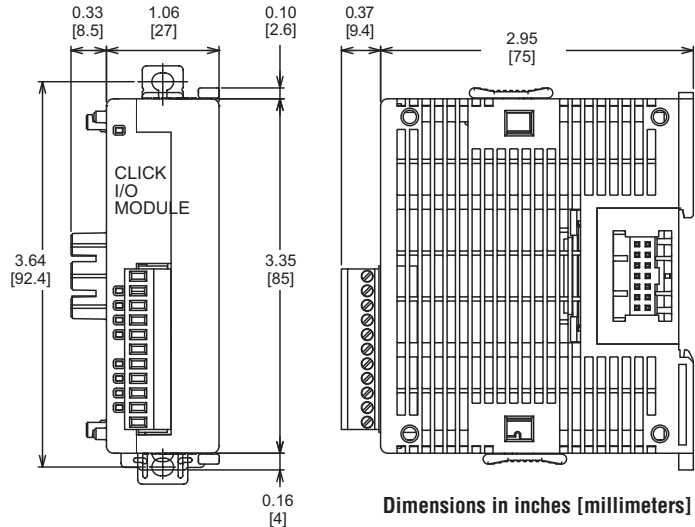
Power Supply



CPU Module



I/O Module



Networking the CLICK PLC

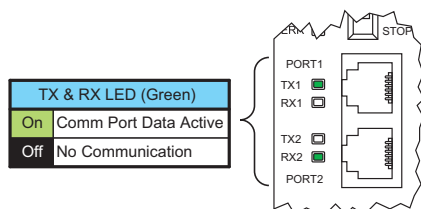
Built-in Communications Ports

All CPUs have two built-in RS-232 communications ports. Analog CPUs also have one built-in RS-485 communications port. One RS-232 port supports the Modbus RTU protocol only and can be used as the programming port. The other ports support either Modbus RTU or ASCII protocol. Both RS-232 ports supply 5 VDC, so you can connect our C-more Micro HMI panel without an additional power supply.

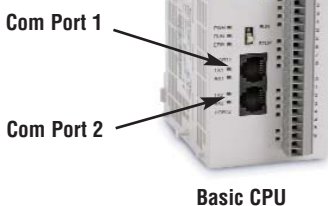
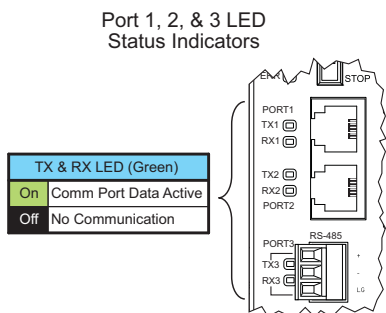
LED Status Indicators

There are LED indicators located to the left of each communication port to indicate when the port is transmitting or receiving.

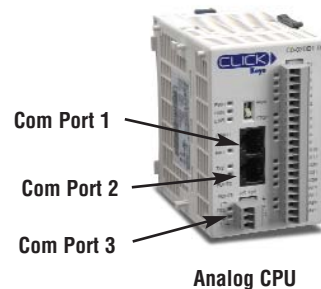
Basic CPUs Port 1 & 2 LED Status Indicators



Analog CPUs Port 1, 2, & 3 LED Status Indicators



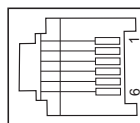
Basic CPU



Analog CPU

| Com Port 1 Specifications | |
|-----------------------------|-------------------------|
| Use: | Programming Port |
| Physical: | 6 pin, RJ12, RS-232 |
| Communication speed (baud): | 38400 (fixed) |
| Parity: | Odd |
| Station Address: | 1 |
| Data length: | 8 bits |
| Stop bit: | 1 |
| Protocol: | Modbus RTU (slave only) |

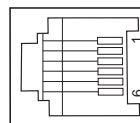
Port 1
6 pin RJ12 Phone Type Jack



| Port 1 Pin Descriptions | | |
|-------------------------|-----|----------------------------|
| 1 | 0V | Power (-) connection (GND) |
| 2 | 5V | Power (+) connection |
| 3 | RXD | Receive data (RS-232) |
| 4 | TXD | Transmit data (RS-232) |
| 5 | NC | No connection |
| 6 | 0V | Power (-) connection (GND) |

| Com Port 2 Specifications | |
|-----------------------------|---|
| Use: | Serial Communication |
| Physical: | 6 pin, RJ12, RS-232 |
| Communication speed (baud): | 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 |
| Parity: | odd, even, none |
| Station Address: | 1 to 247 |
| Data length: | 8 bits (Modbus RTU) or 7, 8 bits (ASCII) |
| Stop bit: | 1,2 |
| Protocol: | Modbus RTU (master/slave) or ASCII in/out |

Port 2
6 pin RJ12 Phone Type Jack



| Port 2 Pin Descriptions | | |
|-------------------------|-----|----------------------------|
| 1 | 0V | Power (-) connection (GND) |
| 2 | 5V | Power (+) connection |
| 3 | RXD | Receive data (RS-232) |
| 4 | TXD | Transmit data (RS-232) |
| 5 | RTS | Request to send |
| 6 | 0V | Power (-) connection (GND) |

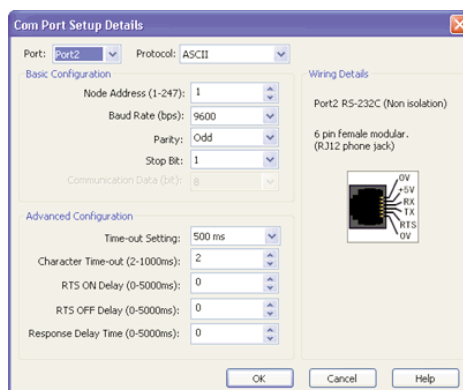
| Com Port 3 Specifications | |
|-----------------------------|---|
| Use: | Serial Communication |
| Physical: | 3 pin, RS-485 |
| Communication speed (baud): | 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 |
| Parity: | odd, even, none |
| Station Address: | 1 to 247 |
| Data length: | 8 bits (Modbus RTU) or 7, 8 bits (ASCII) |
| Stop bit: | 1,2 |
| Protocol: | Modbus RTU (master/slave) or ASCII in/out |

Port 3
RS-485

| Port 3 Pin Descriptions | | |
|-------------------------|-----------|-------------------|
| 1 | + (plus) | Signal A (RS-485) |
| 2 | - (minus) | Signal B (RS-485) |
| 3 | LG | Logic Ground(0 V) |

Port Setup

Use CLICK programming software to easily configure the communication ports.



Networking the CLICK PLC

Typical Serial Communication Applications

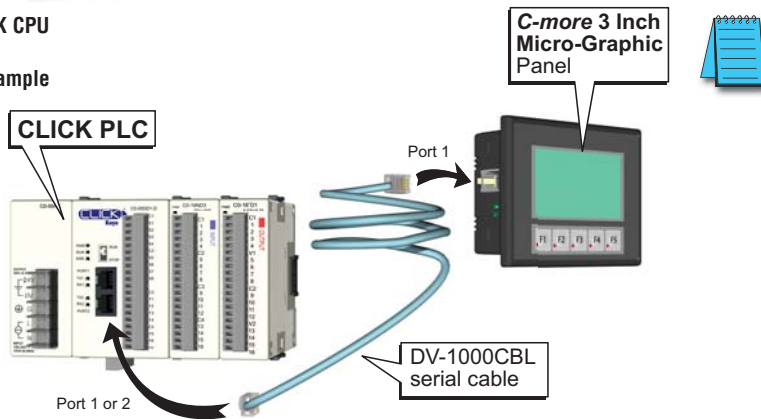
The diagrams on these two pages illustrate the typical uses for the CLICK CPU's communication ports.

Port 1 (RS-232) – Modbus RTU Slave Mode Only



CLICK CPU

Example



NOTE: A C-more Micro-Graphic panel can be connected to CLICK's Port 1 and/or Port 2. Either port can provide 5 VDC to power the panel, but not at the same time. If a C-more Micro-Graphic panel is connected to both ports, then at least one of the panels must be powered by a C-more DC power adapter, EA-MG-P1 or EA-MG-SP1, or another 24 VDC power source.

Do not use the Following DirectLOGIC Devices with CLICK's Port 1 or 2:



WARNING: The following DirectLOGIC PLC devices cannot be used with a CLICK CPU's Port 1 or Port 2:
 Handheld Programmer for DL05, DL06, DL105, DL205 & D3-350 CPUs, p/n D2-HPP
 Handheld Programmer for DL405 CPUs, p/n D4-HPP-1
 Timer/Counter Access for DL05, DL06, DL105, DL205, DL405 & D3-350 CPUs, p/n DV-1000



D2-HPP



D4-HPP-1



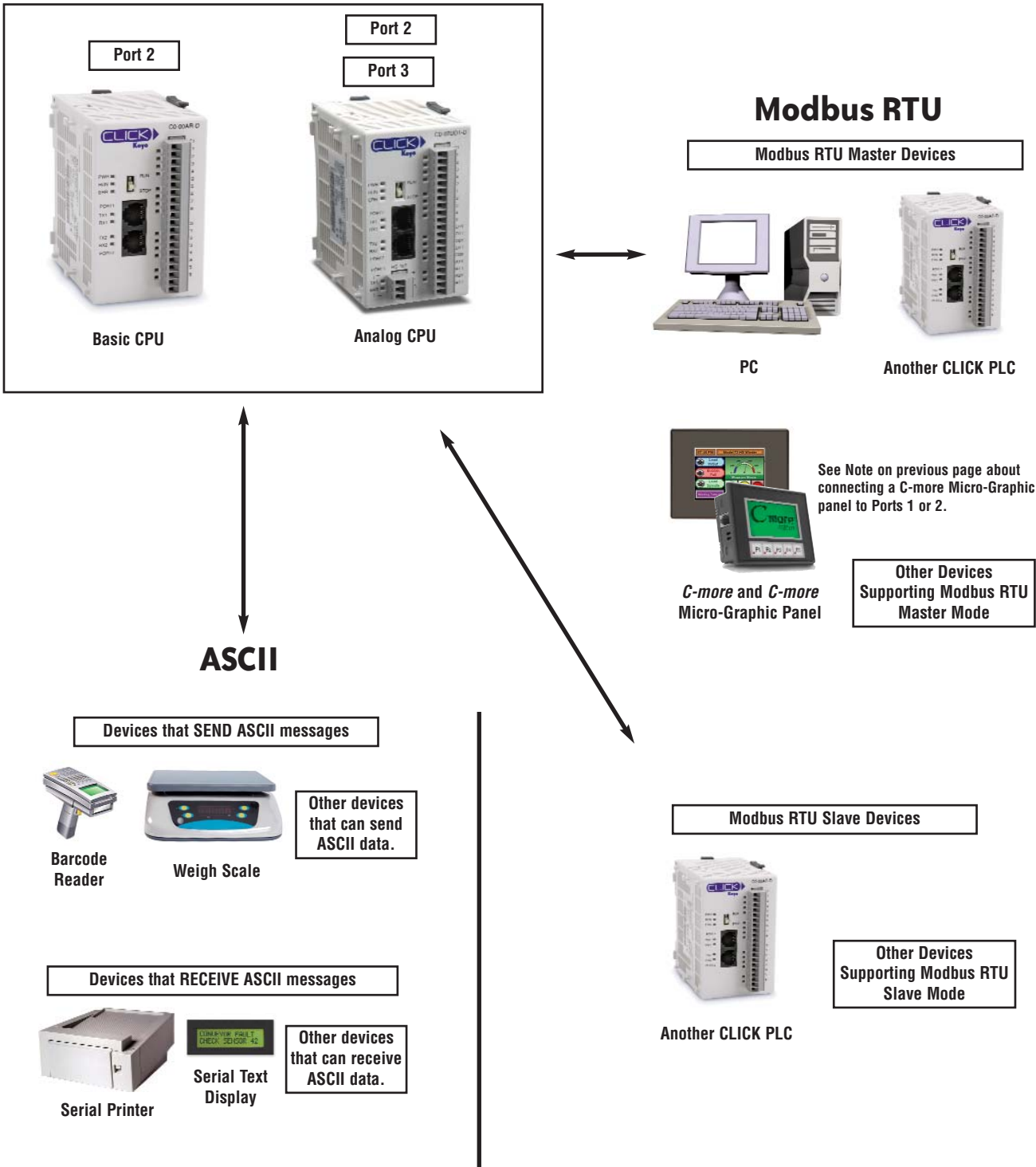
DV-1000

Networking the CLICK PLC

Port 2 (RS-232) – Modbus RTU or ASCII

Port 3 (RS-485; Analog CPUs Only) – Modbus RTU or ASCII

All CPUs have RS-232 port 2, but only analog CPUs have RS-485 port 3. Ports 2 and 3 allow networking to similar devices.



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 PLC system. You can use any other 24 VDC power supply that Automationdirect.com offers.

CO-00AC Power Supply

Limited auxiliary AC power supply allows you to power the 24 VDC CLICK C0 series CPUs with 100-240 VAC supply power. The 0.5A DC power supply is capable of controlling the CPU 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.

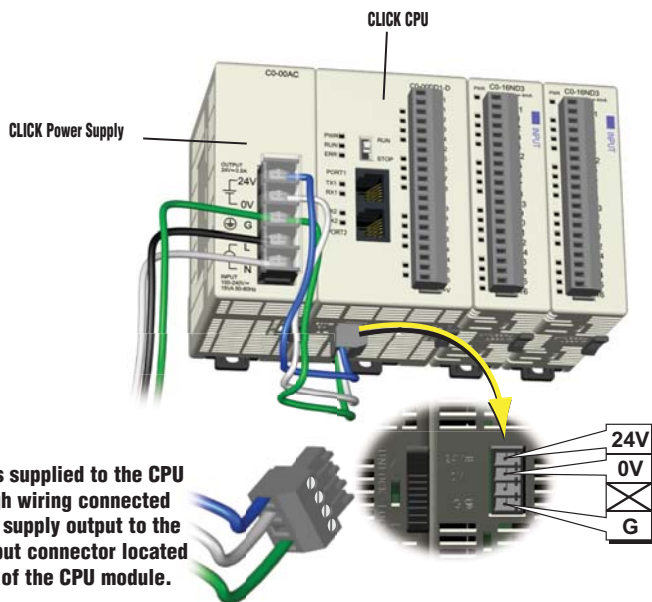
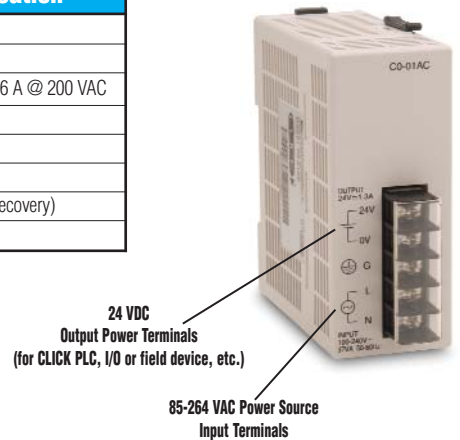
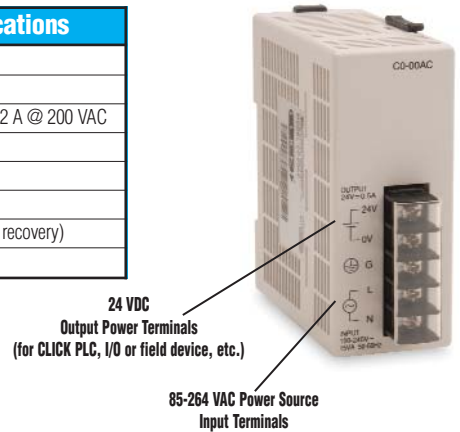
CO-01AC Power Supply

Expanded auxiliary AC power supply allows you to power the 24 VDC CLICK C0 series CPUs 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.

| CLICK 24 VDC Power Supply Ratings | |
|-----------------------------------|----------------|
| Part Number | Output Current |
| CO-00AC | 0.5 A |
| CO-01AC | 1.3 A |

| CO-00AC Power Supply Specifications | |
|-------------------------------------|----------------------------------|
| Input Voltage Range | 85-264 VAC |
| Input Frequency | 47-63 Hz. |
| Input Current (typical) | 0.3 A @ 100 VAC, 0.2 A @ 200 VAC |
| Inrush Current | 30 A |
| Output Voltage Range | 23-25 VDC |
| Output Current | 0.5 A |
| Over Current Protection | @ 0.65 A (automatic recovery) |
| Weight | 5.3 oz (150g) |

| CO-01AC Power Supply Specification | |
|------------------------------------|----------------------------------|
| Input Voltage Range | 85-264 VAC |
| Input Frequency | 47-63 Hz. |
| Input Current (typical) | 0.9 A @ 100 VAC, 0.6 A @ 200 VAC |
| Inrush Current | 30 A |
| Output Voltage Range | 23-25 VDC |
| Output Current | 1.3 A |
| Over Current Protection | @ 1.6 A (automatic recovery) |
| Weight | 6.0 oz (170g) |



Power Budgeting

Power Budgeting

There are two areas to be considered when determining the power required to operate a CLICK PLC system. The first area is the power required by the CLICK CPU, along with the internal logic side power that the CPU provides to its own I/O and any connected I/O modules that are powered through the CPU's expansion port; plus any device, such as a C-more Micro-Graphic panel, that is powered through one of the CPU's communication 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 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 that the 24 VDC power source needs to provide to CLICK's logic side, and also a separate calculation of the total current required for all devices operating from the field side of the PLC system.

See the Power Budgeting Example shown to the right. The table shows current requirements for a CLICK CPU, two I/O modules, and a C-more Micro. Use the total amperage values to select a proper sized power supply.

Power Budgeting Using the CLICK Programming Software

The following example shows the logic side current consumption as calculated in the CLICK Programming software. Based on the amperage rating of the power supply selected in the first column, your power budget is calculated by subtracting each consecutive module's power consumption from the total available power budget. If you exceed the maximum allowable power consumption the power budget row is highlighted in red.

Power budget row turns red if maximum allowable power consumption is exceeded for the power supply selected.



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



Other 24 VDC Power Supply
Example: PSP24-60S

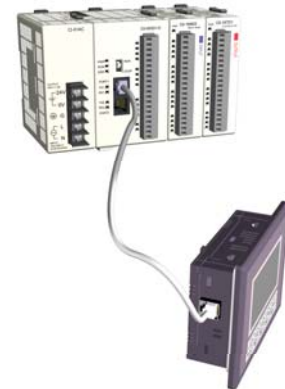
| Current Consumption (mA) | | |
|---------------------------|----------------------------------|------------------------------|
| Part Number | Power Budget 24 VDC (logic side) | External 24 VDC (field side) |
| Basic CPU Modules | | |
| CO-00DD1-D | 120 | 60 |
| CO-00DD2-D | 120 | 0 |
| CO-00DR-D | 120 | 0 |
| CO-00AR-D | 120 | 0 |
| Analog CPU Modules | | |
| CO-02DD1-D | 120 | 60 |
| CO-02DD2-D | 120 | 0 |
| CO-02DR-D | 120 | 0 |
| Input Modules | | |
| CO-08ND3 | 30 | 0 |
| CO-08ND3-1 | 30 | 0 |
| CO-16ND3 | 40 | 0 |
| CO-08NA | 30 | 0 |

| Current Consumption (mA) | | |
|-----------------------------------|----------------------------------|------------------------------|
| Part Number | Power Budget 24 VDC (logic side) | External 24 VDC (field side) |
| Output Modules | | |
| CO-08TD1 | 50 | 15 |
| CO-08TD2 | 50 | 0 |
| CO-16TD1 | 80 | 100 |
| CO-16TD2 | 80 | 0 |
| CO-08TA | 80 | 0 |
| CO-04TRS | 100 | 0 |
| CO-08TR | 100 | 0 |
| C-more Micro-Graphic Panel | | |
| All p/n | 90 | 0 |

Power Budgeting Example

| Current Consumption (mA) Example | | |
|----------------------------------|----------------------------------|------------------------------|
| Part Number | Power Budget 24 VDC (logic side) | External 24 VDC (field side) |
| CO-00DD1-D | 120 | 60 |
| CO-16ND3 | 40 | 0 |
| CO-16TD1 | 80 | 100 |
| C-more Micro | 90 | 0 |
| Total: | 330 | 160 * |

* Plus calculated load of connected I/O devices.



The screenshot shows the 'System Configuration Setup' window with a rack of modules including P/S, CPU, and various I/O modules. Below the rack is a table with the following data:

| Name | P/S | CPU | 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 | CO-00AC | CO-00DR-D | CO-16ND3 | CO-08ND3 | CO-08NA | CO-16TD1 | CO-04TRS | CO-08TR | | |
| Input | | X001-X008 | X101-X116 | X201-X208 | X301-X308 | | | | | |
| Output | | Y001-Y006 | | | | Y401-Y416 | Y501-Y504 | Y601-Y608 | | |
| PwrBudget(mA) | 520 | 120 | 40 | 30 | 30 | 80 | 100 | 120 | | |

The 'PwrBudget(mA)' row is highlighted in red, indicating that the power budget has been exceeded.