INSTALLATION AND FIELD WIRING

In This Chapter...

How to Install the CTRIO Module

The CTRIO module installs into any DL205 base, and it is compatible with several DL205 CPU-slot devices. Consideration must be given to the firmware versions of the CPU-slot devices to assure their compatibility (see chart below).

DirectSOFT32 version 3.0C, Build 71 (or later) is required for use with the CTRIO module if the D2-240 or D2-250 CPUs are to be used.

The first time you power-up the CTRIO module, you should see the OK LED blinking. The blinking LED indicates that the module is in program mode.

CPU and CTRIO Compatibility Chart

CPU-slot Device	Firmware	Slot Restrictions	Max. per Base
D2-240	v. 3.22 or later	any I/O slot except 0	6 CTRIO modules in 9-slot bases, 3 modules in smaller bases*
D2-250	v. 1.56 or later	any I/O slot except 0	6 CTRIO modules in 9-slot bases, 3 modules in smaller bases
H2-WinPLC	-	any I/O slot	6 CTRIO modules in 9-slot bases, 3 modules in smaller bases
H2-EBC	v. 2.1.357 or later	any I/O slot except 0	6 CTRIO modules in 9-slot bases, 3 modules in smaller bases

* for applications requiring multiple CTRIO modules, DirectLOGIC CPUs, and dynamic access (in ladder logic) to CTRIO data, we recommend using the D2-250 CPU.
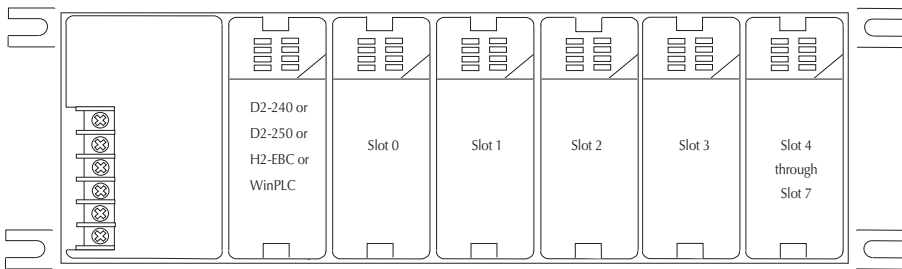
Jumpers

Jumpers are provided to connect input commons or outputs/output commons. Use of these jumpers is not necessary to set up the CTRIO module. The jumpers are provided solely for convenience in wiring.
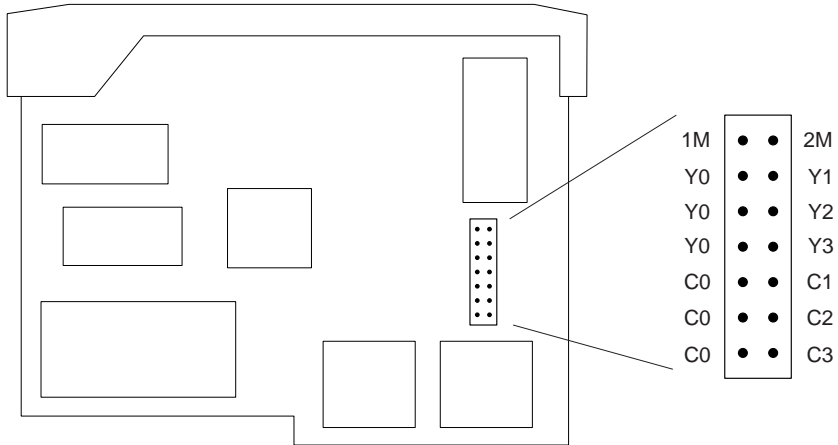
| Jumper Settings	
1M to 2M	Share supply voltage between Ch 1 & Ch2
Y0 to Y1, Y2, Y3	Share commons between high or low side of outputs when isolation is not required
C0 to C1, C2, C3	

Wiring the CTRIO Module

The CTRIO module is a two channel device. Each channel accepts four optically isolated input signals which share the same common. Input circuits can be wired with either polarity without changing the module configuration. Channel 1 inputs can have the opposite polarity from channel 2 inputs.

The module is configured, using CTRIO Workbench, to accommodate the user's application. The function of each input is defined in the configuration of the module (counting, timing, reset, etc.). Refer to Chapter 3, to determine what input configurations are possible.

Field device wiring must be compatible with the module configuration.

Each output circuit is optically isolated from the other outputs. Output commons are independent but can be tied together using internal jumpers. All four discrete outputs are available to be energized in response to any of the inputs.
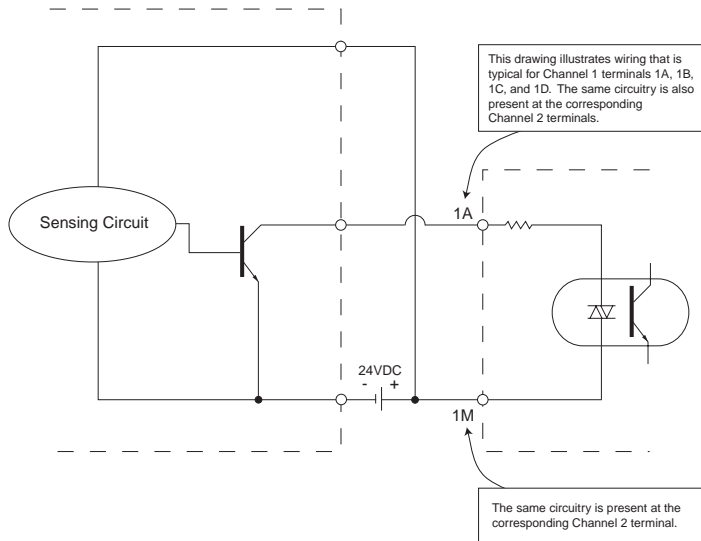
See the notes below for further details about power source considerations, circuit polarities, and field devices. Also, refer to the specifications on pages 1-2 and 1-3 for more information.
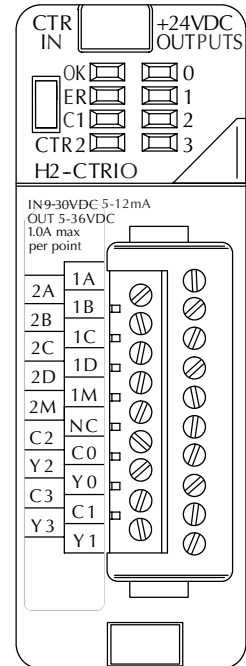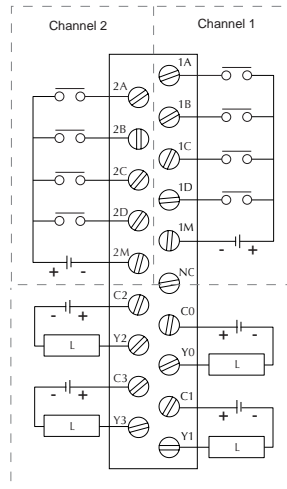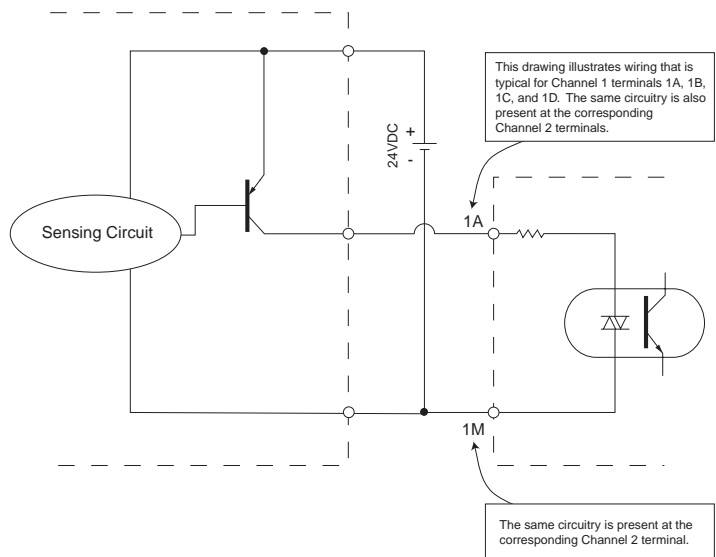

Notes:

1. Inputs (1A, 1B, 1C, 1D and 2A, 2B, 2C, 2D) require user-provided 9-30VDC power sources. Terminals 1M and 2M are the commons for Channel 1 and Channel 2 inputs. Maximum current consumption is 12mA per input point.

2. Polarity of the <u>input</u> power sources (shown above) can be reversed. Consideration must be given, however, to the polarity of the field device. Many field devices are designed for only one polarity and can be damaged if power wiring is reversed.

3. Outputs have <u>one polarity only</u> (as shown above) and are powered by user-provided 5-36VDC power sources. The maximum allowable current per output circuit is 1A.

NPN Field Device

Sensing Circuit

24VDC
- +

1A

1M

This drawing illustrates wiring that is typical for Channel 1 terminals 1A, 1B, 1C, and 1D. The same circuitry is also present at the corresponding Channel 2 terminals.

The same circuitry is present at the corresponding Channel 2 terminal.

PNP Field Device

Sensing Circuit

24VDC
+
-

1A

1M

This drawing illustrates wiring that is typical for Channel 1 terminals 1A, 1B, 1C, and 1D. The same circuitry is also present at the corresponding Channel 2 terminals.

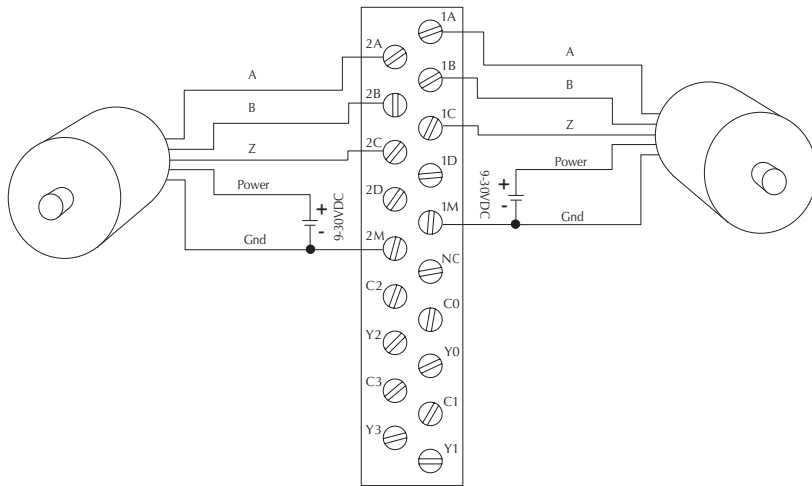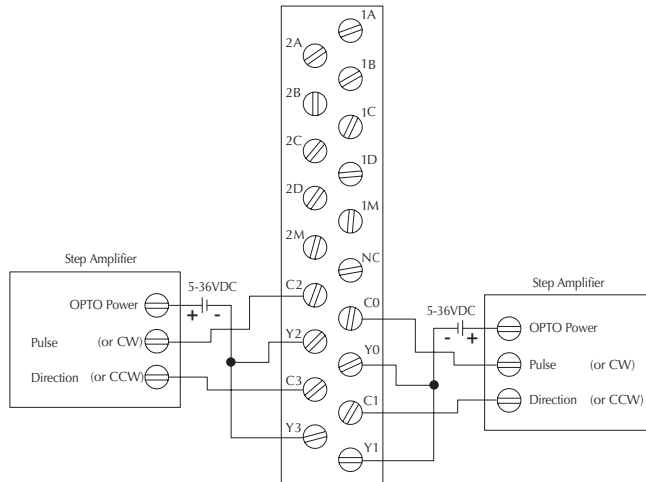The same circuitry is present at the corresponding Channel 2 terminal.

Output Schematic

The CTRIO outputs are individually isolated DC switches that can be used to break the high or the low side of a DC load.
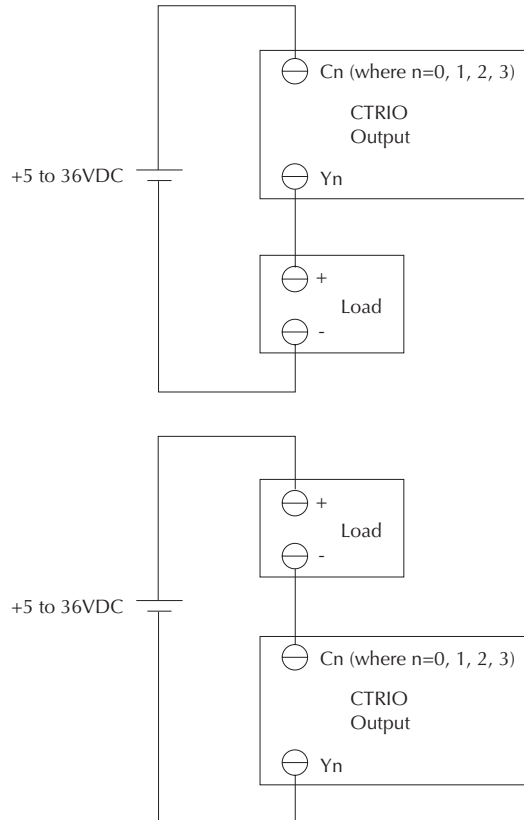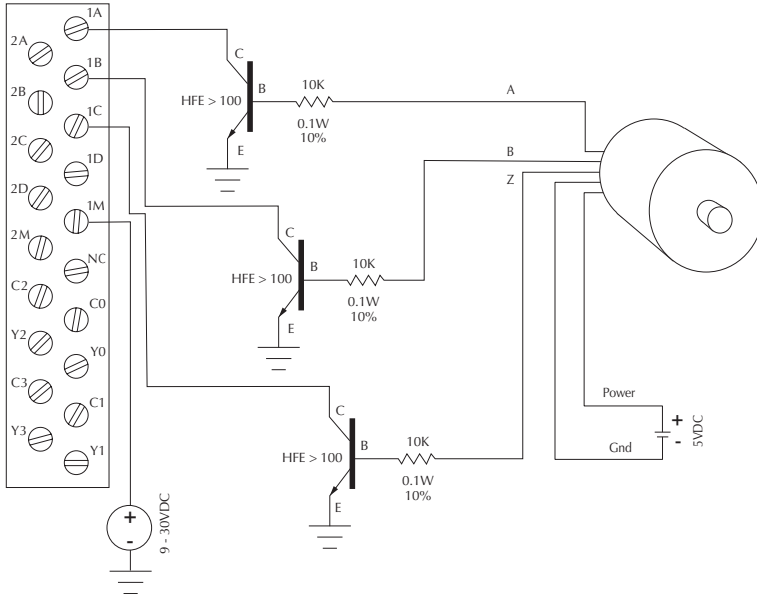
Quadrature Encoder Wiring Example

Stepper Drive Wiring Example

TTL Quadrature Encoder Field Wiring

TTL Input Wiring