

## Technical Information

### Using a PLuS™ Controller for Linear Forward-Reverse Operation

When a resolver based controller is used to establish position in an application where there is forward-reverse motion, there are special considerations to separate which output channels are to be used for the forward motion, and which are for the reverse motion. There are several ways to approach this, all of which involve some type of gating of the outputs. There is normally some type of external control that tells the machine which way to move. This can be as simple as some type of operator switch, which when pushed one direction, tells the machine to move out, and when pushed the opposite way, tells the machine to move in. On the other hand, it may be as complex as a PLC that is telling the machine to do several things at the same time. In either case, there is a switching device that causes the motion to begin. This could be a reversing motor contactor or a double acting valve.

The signals given to these devices are the key to enabling or disabling the PLS outputs. If these devices have some type of auxiliary contacts, these are best for sending enable inputs to a PLS, or gating a power source to the PLS output modules. The use of auxiliary contacts allows the PLS logic to remain isolated from the other control voltage. Do not use a paralleled signal to a coil device as an input to the PLS. There could be noise generated with this type of device that may cause erratic operation of the PLS. If there is no other source to obtain a switched signal, it is recommended that an isolated solid state relay be placed between the coil source voltage and the PLS logic voltage.

If you are going to use the high-speed logic to select which outputs are available by direction, do the following:

1. Divide the output channels into two groups (1 forward group and 1 reverse group).
2. Set each group to operate in Mode 3 (this means that the outputs will be enabled to turn on at their setpoints as long as the input is ON. If the enable input isn't ON, the outputs will not turn ON at their programmed setpoints).

If all you want to do is gate the supply voltage to the outputs, put the auxiliary contact in series with the supply side of the output modules, then simply loop the gated supply to all the outputs for the specific direction.

The following are wiring diagrams for methods of control logic.

#### **SINKING or SOURCING** As pertaining to Electro Cam Corp. products.

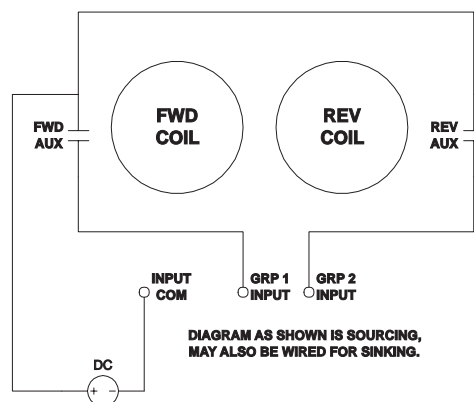
**Sinking** means that when the logic is true and the output (or input device) is ON, the output (or input device) is providing a DC common or ground to the connected device.

**Sourcing** means that when the logic is true and the output (or input device) is ON, the output (or input device) is providing a +DC voltage to the connected device.

This information is important when interfacing an Electro Cam Corp. product with another electronic device. The terms **SINKING** / **SOURCING** are not used in the same context by all manufacturers. If you are using an Electro Cam Corp. product input to an Allen-Bradley 1746-IN16 "sinking" input card\* or similar A-B device, you have to supply a +DC voltage to this card, NOT a DC common or ground. In these cases, **Sinking** is what the card does with the input voltage; sinks it to common or ground.

\* Other manufacturers include, but not limited to: Koyo (formerly GE Series 1, Texas Instruments, or Siemens SIMATIC PLS's) that use descriptions similar to Allen-Bradley.

Wiring for Group Enable Inputs.



Gating the Power Source to the Output Modules.

