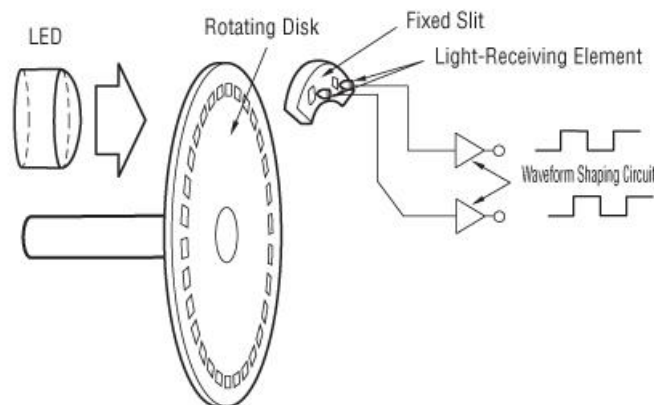


If you want to control a machine like this Ergo Control positioner, and have the possibility of programmed positioning, the controller unit must at all times keep track of all axes positions.

We use incremental encoders. They have two outputs (A & B), which are called quadrature outputs as they are 90 degrees out of phase. The point of this is that in addition to count pulses you can also detect the direction.



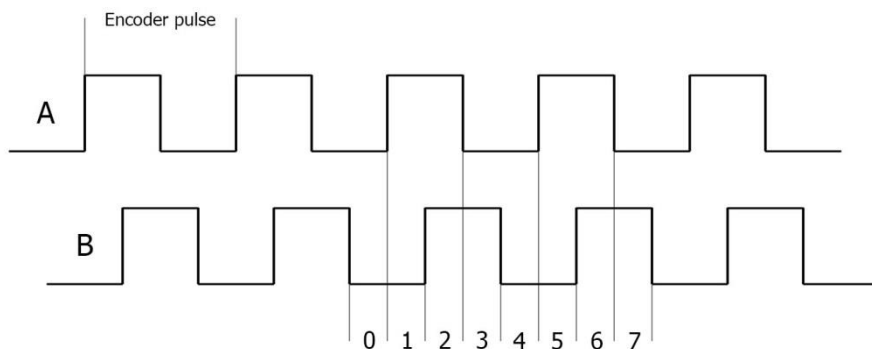
When rotating, the two outputs generate pulses with the help of LED's, a rotating disc and two sensors.



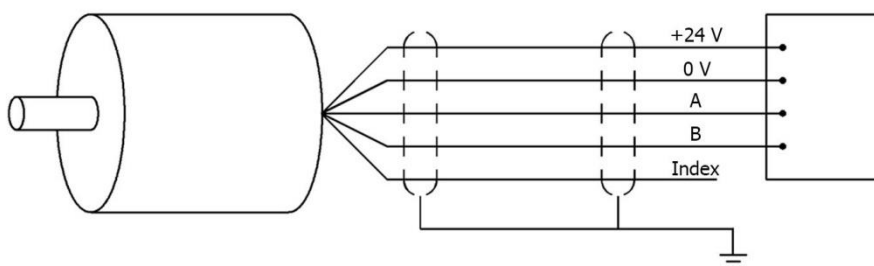
With this type of sensor, you must at startup tell the machine where it is. We call the process calibration and involve manually running the machine to the calibration points for all axes and press the 0 key.

The encoders we use should have a nominal operating voltage 24 volts DC. The outputs must be of PNP type that "sources" 24 volts to the outputs. There are also sensors of NPN type that instead sinks the output to 0 volt. These do not work with our controller. Encoders are also specified with the number of pulses it generates per revolution. We typically use sensors with 100 pulses / revolution and 50 pulses / revolution.

In the controller we sense all flanks of the pulse train and in this way get four times higher resolution. A 100 pulse encoder gives us 400 position values per revolution.



The encoder is connected to the controller according to the following diagram. Always test that the position value increases when running in the positive direction. If the position value instead decreases, you need to cross A and B wires.



The connection cable is shielded and the shield must be connected to the earth rail above the controller with minimum length. The cable itself should also be tied to the rail. See picture below.

