

Technical Information

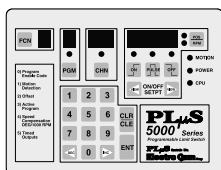
What is a Programmable Limit Switch?

Remember the good old cam switch with its metal cams and limit switches that rolled on those cams? Remember how often it needed adjustment or repair? Now think of what happened when you tried to boost production by increasing the machine speed, just to discover a whole new set of problems with the cam switch that controls the machine timing (e.g., bounce, skipping, and bent/broken limit switch arms).



In 1977, Electro Cam Corp. developed the first real innovation to the old fashioned cam switch. The limit switch was removed and replaced with a PHOTOCOUPLER that eliminated all the major problems associated with mechanical limit switches. This allowed the old metal cams to be replaced with non-metallic shutters that were an easier and more precise way to adjust the ON and OFF setpoints of the switches. This new technology, which is still in use today, enabled users to run machines faster and more precisely than ever before!

The next step in switch evolution was to allow adjustments to the timing settings without even having to stop the machine from running! This new technology resulted in the creation of an 8-Bit Gray Code Encoder by modifying the electronic cam switch. The output signal from the encoder provides machine position, and is used as the input to the combination controller/keypad interface, where the cam settings are programmed. Now the machine operator can monitor machine timing and perform adjustments in a safe manner.



Adding a microprocessor based controller allowed for many new features, including high speed logic, speed compensation, and timed outputs. Because of the 8-Bit Gray Code encoder signal, these controllers are absolute positioning devices. This means that even if the machine moves during a power-down cycle, on power-up the controller knows the machine's precise current position.

The original 8-Bit Gray Code encoder allowed resolution of +/- .7 degree. This was not high enough resolution for some applications, so a resolver based controller was introduced. This increased resolution to 1024 or 4096 increments per revolution of the resolver.

These new controllers are still absolute, high-speed devices, but with many additional features!

Since 1977 Electro Cam Corp. Has Provided Innovative Engineering For Position Sensing & Control Applications.