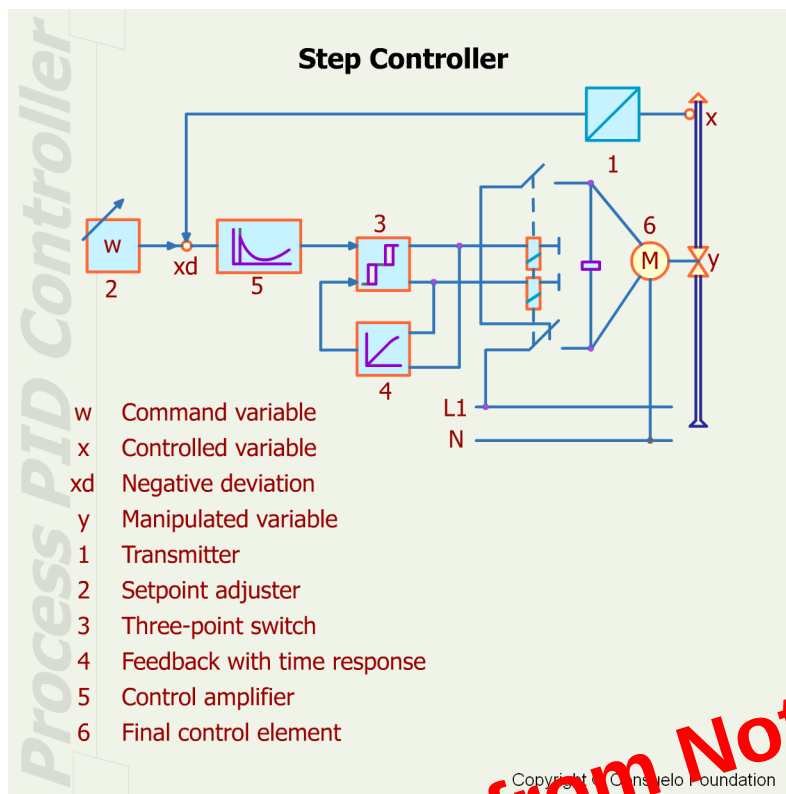




7.2 Two position controllers are used to activate relays, contactors, or thyristor switches for switching electric heaters or coolers. The two-position controller switches if the controlled variable goes below the value of lower tolerance limit or above the higher tolerance limit. A continuous oscillation occurs whose frequency depends on the delay time of the controlled system and the switching hysteresis of the controller.

7.3 Continuous controllers are mainly used with pneumatic actuators. The controller output signal of 0 to 20 mA or 4 to 20mA acts continuously on the final control element through an electropneumatic signal converter.

7.4 There is yet another possible classification of electronic PID controller: the **analog** and the **digital** type.

7.4.1 Analog controller processes, computes and provides an output in a continuously variable signal level.

7.4.2 Digital controllers, unlike a controller of analog or digital processing configuration, determines the manipulated variable through an arithmetic operation using digitized formula, which is performed on an intermittent signal obtained by means of sampling. Present electronic PID controllers are of digital type. The figure illustrates how a digital controller performs a corrective action (even if it is called "linear") - **incremental**.

The digital type controller issues the control output response to a stepwise deviation in the same manner as the analog type controller. However, the control output is determined at each sampling time in the digital type B controller and therefore is changed progressively by a fixed increment C . For example the typical resolution of the linear output of common PID controller is divided into 205 increments. Accordingly, the control output of the linear sensor controller is changed toward a maximum of 205 increments on a step-by-step basis.

Step Controller

Instrumentation and Process Control | Back: Type of Process Loop Control System | Next: Control Valve

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