

Watch Dog Timer

Associated with QuickControl program - “../QuickControl/QCI Examples/Applications”

Watch Dog Timer.qcp.

Overview

This application note provides information regarding QuickControl's implementation of a Watch Dog Timer. A Watch Dog Timer is generally a monitoring algorithm, making sure a process completes without problems. In control systems, this is critical. QuickControl provides the SilverLode servo with two controls known as the Delay Counter and the Wait Delay to implement a Watch Dog Timer.

The SilverLode servo provides a convenient means to control and use the Watch Dog Timer. The Delay Counter [Register 5] defines the maximum time allowed for a process to run. Anytime the Delay Counter has a positive value, it automatically starts counting down. To reset the Delay Counter, a Write Register, Program Mode (WRP) command is used. Once the Delay Counter has reached the value zero, it sets the status bit Wait Delay Count Exhausted. This bit(flag) is available in several status words including the Internal Status Word (see User Manual for status words).

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For this application note, a Watch Dog Timer will be implemented to insure Input #5 toggles once every 2 seconds. This is a standard implementation used to ensure the servo only runs when some external controller (i.e. PLC, another servo,...) is also running. If the external controller does not toggle Input #5 every 2 seconds, the servo will stop.

The program monitors the status of I/O #5 and resets the Delay Counter when I/O #5 is low. During the timer countdown, the motor spins freely. If Delay Counter reaches zero, the Wait Delay Count Exhausted bit is set. The Kill Motor Conditions (KMR) command then triggers the active Kill Motor Recovery (KMR) program which stops the servo. See Shutdown and Recovery Techniques on SilverLode User Manual for more details on KMC and KMR.

More information on using any of the commands discussed here can be found in the SilverLode servo user manual or command reference. Both can be obtained from QuickSilver's website at www.QuickSilverControls.com under Support - Manuals.