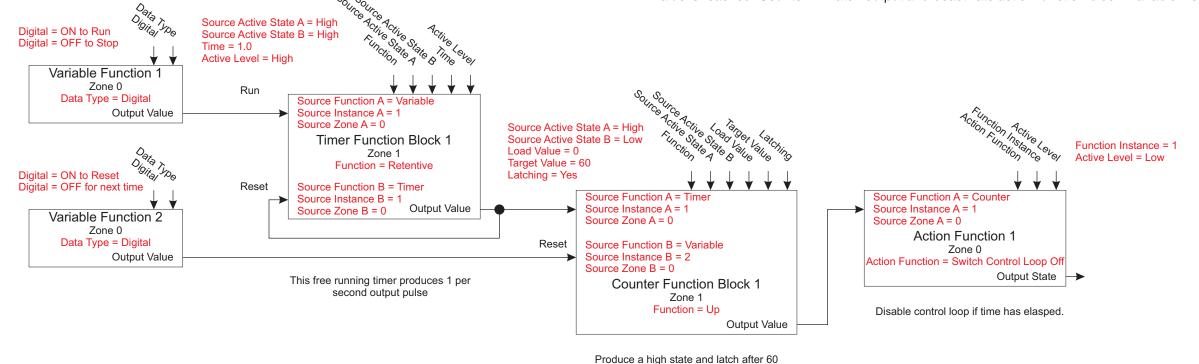Example 1 - Using a communications watchdog circuit to de-activate the control loop when communications to PLC is lost.

Real world example is where a customer wants to disable auto control mode if the communications does not update variable 2 in less than 60 seconds.

Demonstrates use of Timer, Counter, and Action Function blocks.

Theory of operation - Timer 1 is free running timer when Run signal is active. Timer 1 produces pulse when Time in seconds is reached providing reset to self and pulse to Counter 1. Counter 1 counts up for each timer pulse starting at Load Value and produces a pulse count when Target Value is reached. Counter will latch output and deactivate action function block. Variable 2 set as digital will keep resetting counter.

Digital = ON to Run
Digital = OFF to Stop

Data Type
Digital

Variable Function 1
Zone 0
Data Type = Digital
Output Value

Run

Source Active State A = High
Source Active State B = High
Time = 1.0
Active Level = High

Source Active State B
Source Active State A
Function
Active Level
Time

Source Function A = Variable
Source Instance A = 1
Source Zone A = 0

Timer Function Block 1
Zone 1
Function = Retentive

Source Function B = Timer
Source Instance B = 1
Source Zone B = 0
Output Value

Reset

Digital = ON to Reset
Digital = OFF for next time

Data Type
Digital

Variable Function 2
Zone 0
Data Type = Digital
Output Value

This free running timer produces 1 per second output pulse

Source Active State A = High
Source Active State B = Low
Load Value = 0
Target Value = 60
Latching = Yes

Source Active State B
Source Active State A
Function
Load Value
Target Value
Latching

Source Function A = Timer
Source Instance A = 1
Source Zone A = 0

Source Function B = Variable
Source Instance B = 2
Source Zone B = 0

Counter Function Block 1
Zone 1
Function = Up
Output Value

Reset

Produce a high state and latch after 60 seconds.

Function Instance = 1
Active Level = Low

Action Function
Function Instance
Active Level

Source Function A = Counter
Source Instance A = 1
Source Zone A = 0

Action Function 1
Zone 0
Action Function = Switch Control Loop Off
Output State

Disable control loop if time has elasped.

Information Flow

EZ-ZONE RM Application Example - using function blocks
Print on 11" x 17" landscape paper for best viewing

Revision A