APPLICATION NOTE #: AN_VFD_CV1023
EFFECTIVE DATE: 06/27/05
SUPERSEDES DATE:
ORIGINATOR: A. Perez
NO. OF PAGES: 3

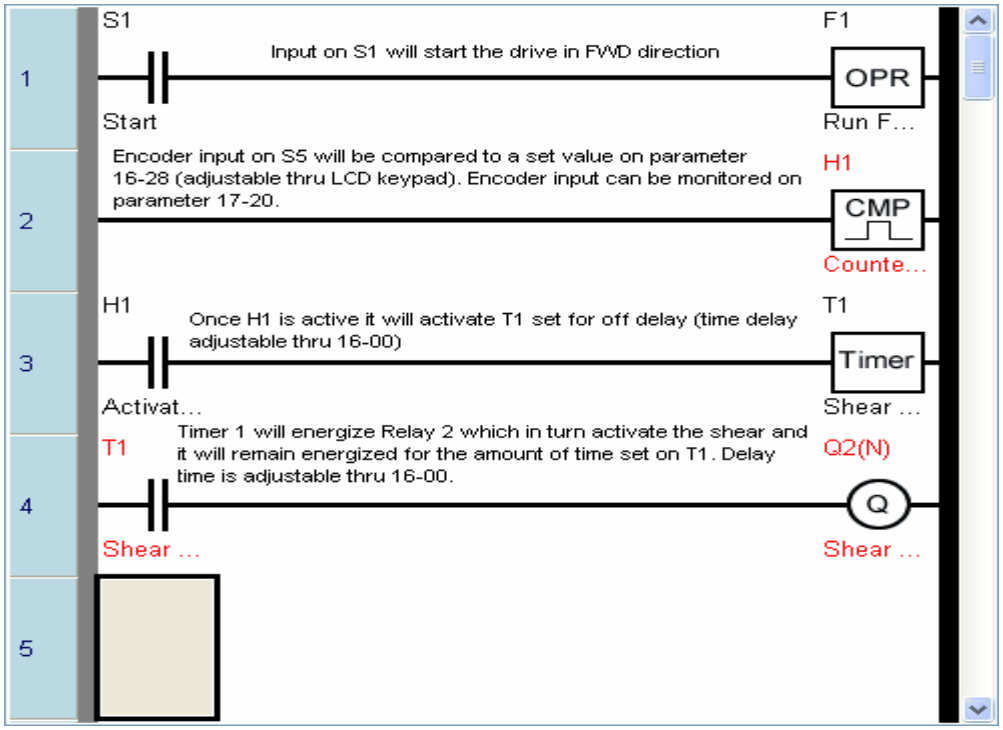
CUT TO LENGTH USING THE CV10's PLC EDIT FUNCTION

Application: Line shear cutter which cuts plastic bags at a predetermined length. The operator has to be able to adjust the length of the cut by simply changing a parameter in the drive.

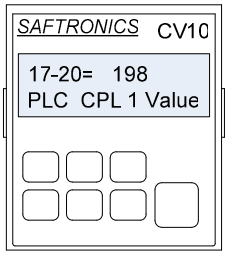
The purpose of this application note is to demonstrate the use of the PLC function in conjunction with the new firmware kit (046-CV10EDIT) that allows the user to adjust and monitor functions (timers, counter values, digital inputs, etc) via the LCD keypad provided in the kit.

The example chosen for this demonstration is based upon a customer's request to replace a Red Lion counter. The counter activates a shear which cuts a bag into different lengths based on the pulse output of an encoder mounted on the motor. Because the pulse count will change with the line speed, it is much easier for the operator to change the counter value at the keypad to activate the shear, rather than using a PC to access the PLC area of the CV10.

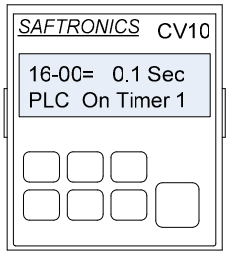
The figure below shows a simple PLC logic programmed into the CV10 that performs as follows: The run command is a contact closure on terminal S1. The line speed is determined by a 0-10VDC signal being supplied to the analog input terminal AIN. The encoder pulse is sent directly to the "encoder comparing input" terminal S5 where the input is compared to a set value then reset to activate to activate the output.



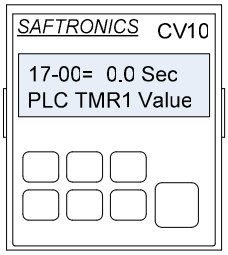
In the previous figure, the start is initiated by closing terminal S1 to CM, the drive will then ramp up in the forward direction at the rate determined by the settings of function block F1 (Run Forward) and follows the line speed dictated by the analog signal supplied to terminal AIN. The "encoder comparator" H1 starts counting the pulses coming into terminal S5 which are compared to a predetermined value (this value can be changed thru the LCD keypad on parameter 16-28) set in the counter. Once the input pulses match the predetermined value in the counter (the pulse count can be monitored thru the keypad on parameter 17-20) the counter H1 resets and starts counting again. At the same time T1 timer and Relay 2 activate. Since Relay 2 is connected to T1 (off delay) it stays energized for the amount of time set in the timer. Once the time base for the timer has been set, the actual time can be changed thru the keypad on parameter 16-00. The actual time can be monitored in parameter 17-00. See figures below.



17-20= Pulse Input Monitor

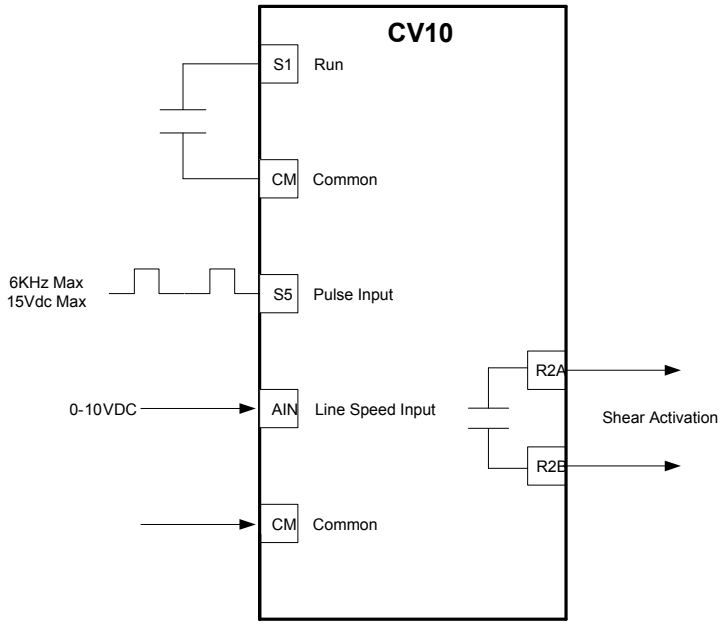


16-00= Timer 1 Setting



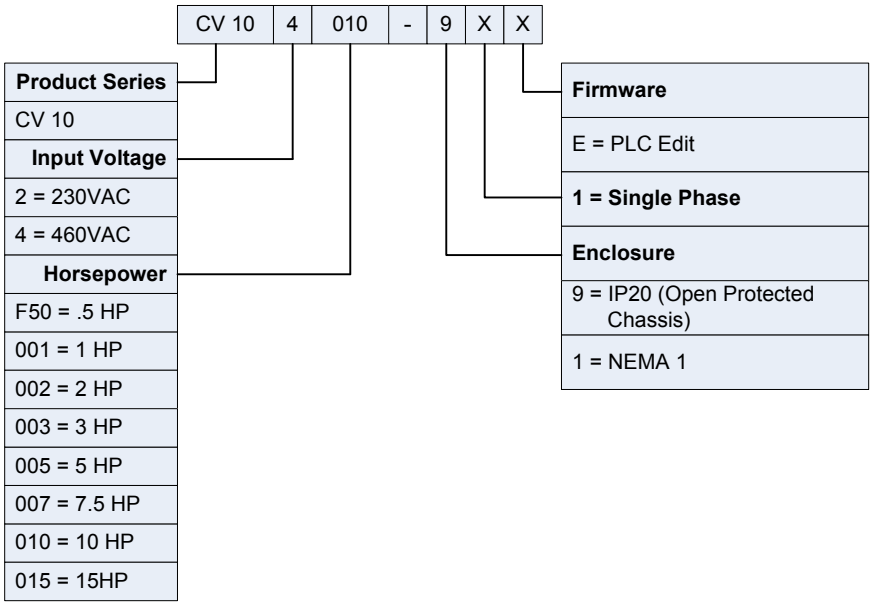
17-00= Timer 1 Monitor Value

The following shows how the drive needs to be wired for the PLC program to work.



The purpose of the PLC edit firmware is to make it easier for the user to make value changes and also to monitor values of the different functions available in the PLC area after a base PLC ladder logic has been established, with the use of Saflink part number 046-7044. Please take note that to use this feature, the standard CV10 drive must be flashed with the PLC edit software part number 046-6078 and the LED keypad needs to be replaced with the LCD keypad part number SDOPS-LCD. See the following part number configurator.

PART NUMBER CONFIGURATOR



INVERTER	KIT Part Number	KIT List Price	KIT INCLUDES		
			Software Part Number	LCD Keypad	Manual
CV10	046-CV10EDIT	$235	046-6078	SDOPS-LCD	027-6078