uPLC

Introduction

The internal u-PLC is used to connect the external world (inputs/outputs) with the world of the parameters of the integrated drive NLi linear motor. The PLC can be used to copy digital input to a binary parameter, to copy a binary parameter to a digital output and to execute mathematical and Boolean operations. The PLC program must be inserted as a list of instructions by using the keyboard or by the serial line using a PC and an interface program. A PLC program written to meet the needs of a large number of applications corresponds to the default parameters. In most cases it is not necessary to program the PLC itself. The main features of the uPLC are:
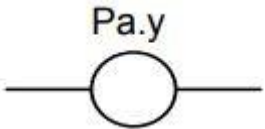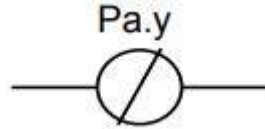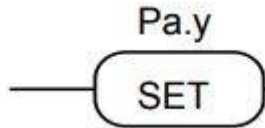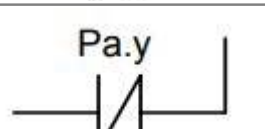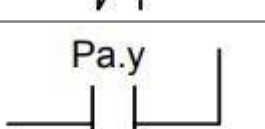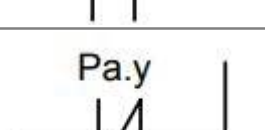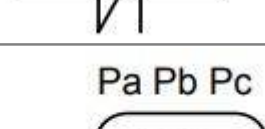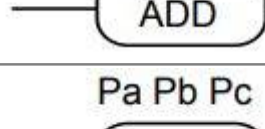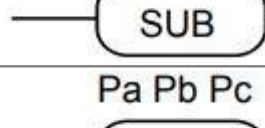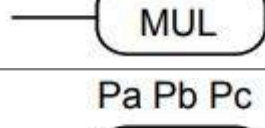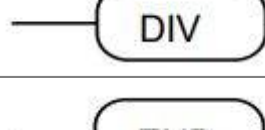
1. 64 program steps
2. 6msec of fixed scanning time
3. 2 timers
4. 15 different instructions
5. stack depth equal to 1
6. mathematical operations 16 / 32 bits

uPLC feature is available using Firmware version >= 5E41

Please note that when the uPLC is running the 3 digital ouputs are under control of the PLC program ! So, the PLC program can associate every events to these 3 digital outputs instead of the standard options.

PLC instructions

Symbol	Instruction	Parameter	Comment
Pa.y	LD	Pa,y	loads the y bit of the Pa parameter on the stack
Pa.y	LDn	Pa,y	loads the negated y bit of the Pa parameter on the stack

Symbol	Instruction	Parameters	Description
Pa.y (circle)	OUT	Pa,y	sets the y bit of the Pa parameter to the value loaded on the stack
Pa.y (circle with slash)	OUTn	Pa,y	places the y bit of the Pa parameter to the value of stack negating it
Pa.y SET	SET	Pa,y	if the stack = 1, the y bit of the Pa parameter is set to 1
Pa.y RST	RES	Pa,y	if the stack = 1, the y bit of the Pa parameter is set to 0
Pa.y (contact)	AND	Pa,y	if the bit loaded on the stack contains the result of the logical AND operation between itself and the y bit of the Pa parameter
Pa.y (negated contact)	ANDn	Pa,y	the bit of the stack contains the result of the logical AND operation between itself and the y bit of the negated Pa parameter
Pa.y (contact)	OR	Pa,y	the bit loaded on the stack contains the result of the logical OR operation between itself and the y bit of the Pa parameter
Pa.y (negated contact)	ORn	Pa,y	the bit on the stack contains the result of the logical OR operation between itself and the y bit of the negated Pa parameter
Pa Pb Pc ADD	ADD	Pa,Pb,Pc	if the bit on the stack = 1, the addition operation is executed on the parameters in which: Pc = Pa + Pb
Pa Pb Pc SUB	SUB	Pa,Pb,Pc	if the bit on the stack = 1, the subtraction operation is executed on the parameters in which: Pc = Pa – Pb
Pa Pb Pc MUL	MUL	Pa,Pb,Pc	if the bit on the stack = 1, the multiplication operation is executed on the parameters in which: Pc = Pa · Pb
Pa Pb Pc DIV	DIV	Pa,Pb,Pc	if the bit on the stack = 1, the division operation is executed on the parameters in which: Pc = Pa / Pb. If Pb is equal to 0 the division operation is not executed
END	END		end of program

From:

https://dokuwiki.nilab.at/ - **NiLAB GmbH Knowledgebase**

Permanent link:

https://dokuwiki.nilab.at/doku.php?id=integrated_drive_motors:uplc

Last update: **2024/11/12 20:10**