uPLC



Introduction

The internal u-PLC connects the external world (inputs/outputs) with the parameters of the NLi integrated-drive linear motor. The PLC can copy a digital input to a binary parameter, copy a binary parameter to a digital output, and execute mathematical and Boolean operations.

The PLC program is inserted as a list of instructions, either by keyboard or via the serial line using a PC and an interface program. A PLC program written to meet the needs of most applications corresponds to the default parameters. In most cases, it is not necessary to program the PLC itself.

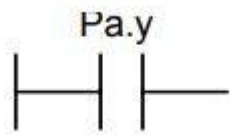
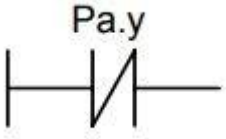
The main features of the uPLC are:

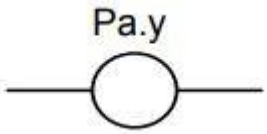
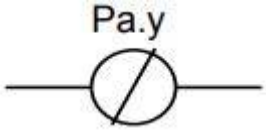
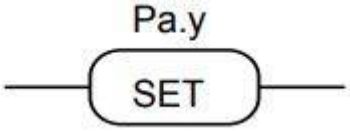
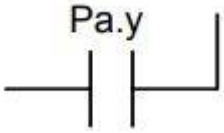
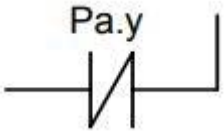
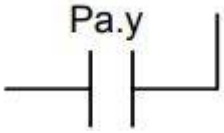
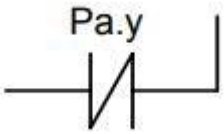
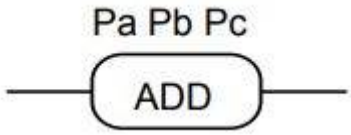
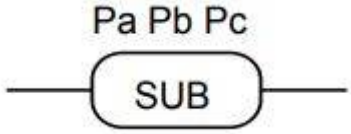
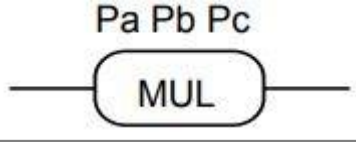
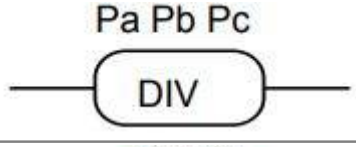
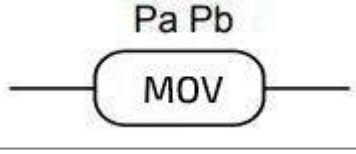
Item
64 program steps
6 ms fixed scan time
2 timers
15 different instructions
Stack depth equal to 1
Mathematical operations 16 / 32 bits

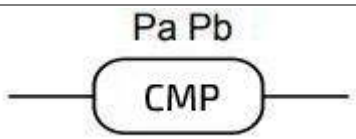
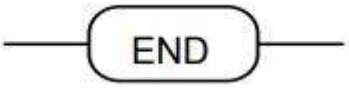
The uPLC feature is available with firmware version ≥ 5E41.

Note that when the uPLC is running, the 3 digital outputs are under control of the PLC program. So the PLC program can associate every event with these 3 digital outputs, instead of the standard options.

PLC instructions

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

	OUT	Pa,y	sets the y bit of the Pa parameter to the value loaded on the stack
	OUTn	Pa,y	places the y bit of the Pa parameter to the value of the stack, negating it
	SET	Pa,y	if the stack = 1, the y bit of the Pa parameter is set to 1
	RES	Pa,y	if the stack = 1, the y bit of the Pa parameter is set to 0
	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
	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
	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
	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
	ADD	Pa,Pb,Pc	if the bit on the stack = 1, the addition operation is executed on the parameters in which: Pc = Pa + Pb
	SUB	Pa,Pb,Pc	if the bit on the stack = 1, the subtraction operation is executed on the parameters in which: Pc = Pa – Pb
	MUL	Pa,Pb,Pc	if the bit on the stack = 1, the multiplication operation is executed on the parameters in which: Pc = Pa · Pb
	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
	MOV	Pa, Pb	if the bit on the stack = 1, the Pa register is copied to the Pb register

	CMP	Pa, Pb	if the bit on the stack = 1, compare the Pa register with the Pb register. If Pa is equal to Pb, register 8671 bit 3 is set to 1; if Pa < Pb, bit 2 is set to 1; if Pa > Pb, bit 4 is set to 1.
	END		end of program

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

Permanent link:
https://www.nilab.at/dokuwiki/doku.php?id=en:integrated_drive_motors:uplc

Last update: **2026/09/11 07:56**