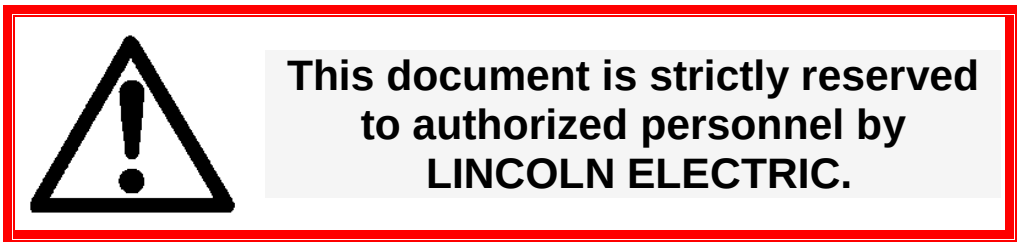
PLC MODE

EDITION : EN
REVISION : E
DATE : 01-2023

Instructions for use

REF. : **8695 5524**

Original instructions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A - DESCRIPTION

1 - INTRODUCTION

The aim of this document is to explain how to use a PLC to remotely control a **NERTAMATIC 450** power source or **POWERWAVE S500** power source with a "**LINC-MASTER**".

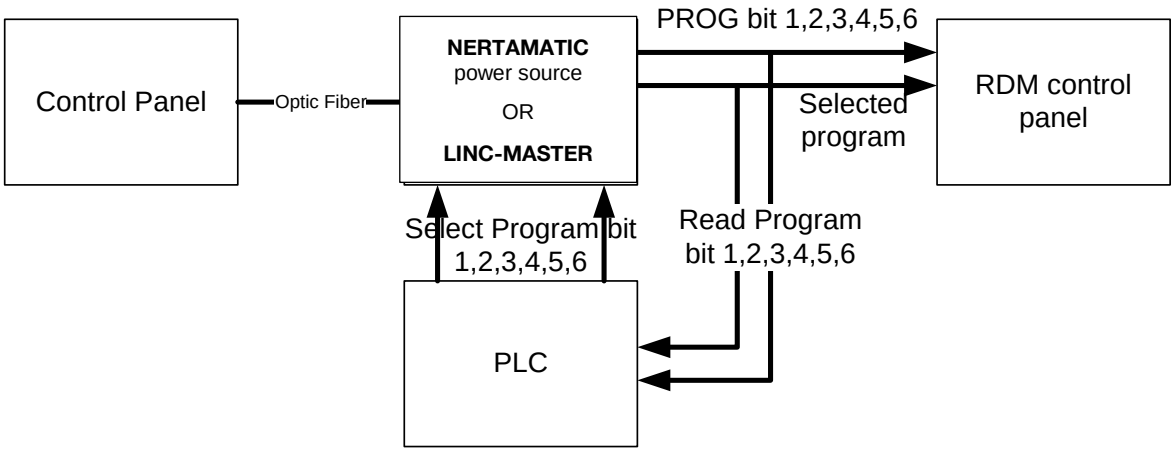
2 - ACRONYMS

N450 **NERTAMATIC 450** Power Source

3 - DEFINITIONS

Name	Definition
Power Source	Part of the system delivering the welding current
Control Panel	Human Machine Interface
RDM Control Panel	Human Machine Interface for RDM valve
RDM Valve	Electronic valve used for plasma welding gas

4 - DESCRIPTION



You must configure the PLC parameter to '1' in the Control Panel to activate this function.

Please refer to the document :

- **86955510: NERTAMATIC 450 Plus** installation
- **86955520: LINC-MASTER** installation

The control panel can be used to create programs. The PLC chooses the program needed. The PLC can read the selected program (PROG bit 1,2,3,4,5,6). The PLC can start the welding, stop the welding, change the program to the next one,…

B - INPUTS / OUTPUTS FOR PLC INTERFACE

1 - ALL I/O

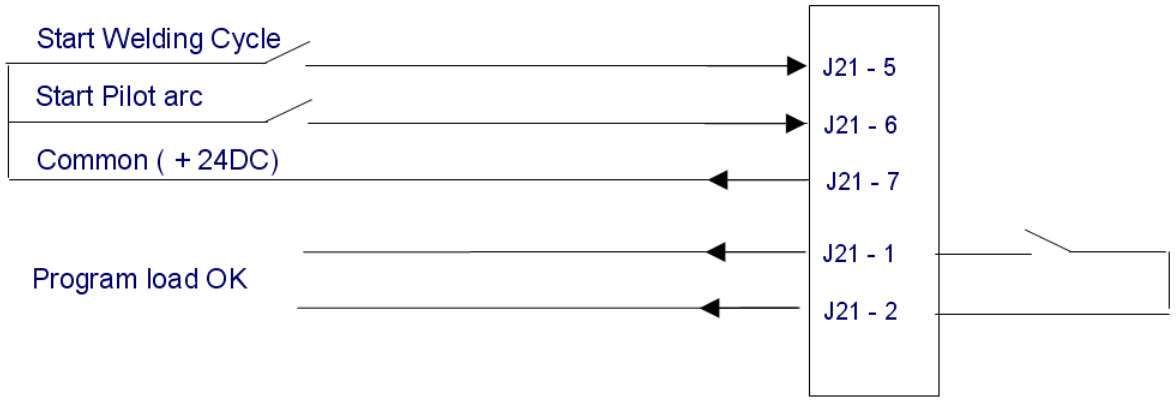
J19-1	Output	Common for J19-2,3,4,5
J19-2	Output	Pilot Arc ON: - in Plasma Cycle when Pilot Arc is ON
J19-3	Output	RT: not used
J19-4	Output	Welding Arc ON: - when welding is ON
J19-5	Output	In cycle: - ON when cycle is ON (see chapter C)
J19-6	Output	Not used
J19-7	Output	Not used
J19-8	Output	Power Fault: - ON when the power source is in fault mode
J19-9	Output	Higher Limit Switch AVC
J19-10	Output	Common for J19-6,7,8,9
J21-1 & J21-2	Output	Program load OK : Closed to say that the program number has been read
J21-5	Input	Start Welding Cycle : - start welding cycle in TIG - start welding cycle in Plasma if Pilot Arc is ON
J21-6	Input	Start Pilot Arc : - only in Plasma welding before starting of the welding cycle
J21-7	Output	Power for contacts
J24-1	Output	Power for contacts
J24-2	Output	Power for contacts
J24-3	Output	Chain: - used to get the first program number before the cycle start - used to change the program number to n+1 during cycle
J24-4	Input	Select Program bit 1 : See below
J24-5	Input	Select Program bit 2 : See below
J24-6	Input	Select Program bit 3 : See below
J24-7	Input	Select Program bit 4 : See below
J24-8	Input	Select Program bit 5 : See below
J24-9	Input	Select Program bit 6 : See below
J24-10	Input	Immediate stop
J28-1	Ground	0V
J28-2	Output	Read Program bit 1 : See below
J28-3	Output	Read Program bit 2: See below
J28-4	Output	Read Program bit 3: See below
J28-5	Output	Read Program bit 4: See below
J28-6	Output	Read Program bit 5: See below
J28-7	Output	Read Program bit 6: See below
J28-8		Not used
J28-9		Not used
J28-10		Not used
J29-1 & J29-3	Input	Water flow security: - The cycle will not start if this input is not ON - The cycle will stop immediately if this input is OFF

2 - SELECT / READ PROGRAM

J24-9	J24-8	J24-7	J24-6	J24-5	J24-4	Selection Program Number
J28-7	J28-6	J28-5	J28-4	J28-3	J28-2	Read Program Number
OFF	OFF	OFF	OFF	OFF	OFF	none
OFF	OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	OFF	ON	ON	3
OFF	OFF	OFF	ON	OFF	OFF	4
OFF	OFF	OFF	ON	OFF	ON	5
OFF	OFF	OFF	ON	ON	OFF	6
OFF	OFF	OFF	ON	ON	ON	7
OFF	OFF	ON	OFF	OFF	OFF	8
OFF	OFF	ON	OFF	OFF	ON	9
OFF	OFF	ON	OFF	ON	OFF	10
OFF	OFF	ON	OFF	ON	ON	11
OFF	OFF	ON	ON	OFF	OFF	12
OFF	OFF	ON	ON	OFF	ON	13
OFF	OFF	ON	ON	ON	OFF	14
OFF	OFF	ON	ON	ON	ON	15
OFF	ON	OFF	OFF	OFF	OFF	16
OFF	ON	OFF	OFF	OFF	ON	17
OFF	ON	OFF	OFF	ON	OFF	18
OFF	ON	OFF	OFF	ON	ON	19
OFF	ON	OFF	ON	OFF	OFF	20
OFF	ON	OFF	ON	OFF	ON	21
OFF	ON	OFF	ON	ON	OFF	22
OFF	ON	OFF	ON	ON	ON	23
OFF	ON	ON	OFF	OFF	OFF	24
OFF	ON	ON	OFF	OFF	ON	25
OFF	ON	ON	OFF	ON	OFF	26
OFF	ON	ON	OFF	ON	ON	27
OFF	ON	ON	ON	OFF	OFF	28
OFF	ON	ON	ON	OFF	ON	29
OFF	ON	ON	ON	ON	OFF	30
OFF	ON	ON	ON	ON	ON	31
ON	OFF	OFF	OFF	OFF	OFF	32
ON	OFF	OFF	OFF	OFF	ON	33
ON	OFF	OFF	OFF	ON	OFF	34
ON	OFF	OFF	OFF	ON	ON	35
ON	OFF	OFF	ON	OFF	OFF	36
ON	OFF	OFF	ON	OFF	ON	37
ON	OFF	OFF	ON	ON	OFF	38
ON	OFF	OFF	ON	ON	ON	39
ON	OFF	ON	OFF	OFF	OFF	40
ON	OFF	ON	OFF	OFF	ON	41
ON	OFF	ON	OFF	ON	OFF	42
ON	OFF	ON	OFF	ON	ON	43
ON	OFF	ON	ON	OFF	OFF	44
ON	OFF	ON	ON	OFF	ON	45
ON	OFF	ON	ON	ON	OFF	46
ON	OFF	ON	ON	ON	ON	47
ON	ON	OFF	OFF	OFF	OFF	48
ON	ON	OFF	OFF	OFF	ON	49

J24-9	J24-8	J24-7	J24-6	J24-5	J24-4	Selection Program Number
J28-7	J28-6	J28-5	J28-4	J28-3	J28-2	Read Program Number
ON	ON	OFF	OFF	ON	OFF	50
ON	ON	OFF	OFF	ON	ON	51
ON	ON	OFF	ON	OFF	OFF	52
ON	ON	OFF	ON	OFF	ON	53
ON	ON	OFF	ON	ON	OFF	54
ON	ON	OFF	ON	ON	ON	55
ON	ON	ON	OFF	OFF	OFF	56
ON	ON	ON	OFF	OFF	ON	57
ON	ON	ON	OFF	ON	OFF	58
ON	ON	ON	OFF	ON	ON	59
ON	ON	ON	ON	OFF	OFF	60
ON	ON	ON	ON	OFF	ON	61
ON	ON	ON	ON	ON	OFF	62
ON	ON	ON	ON	ON	ON	63

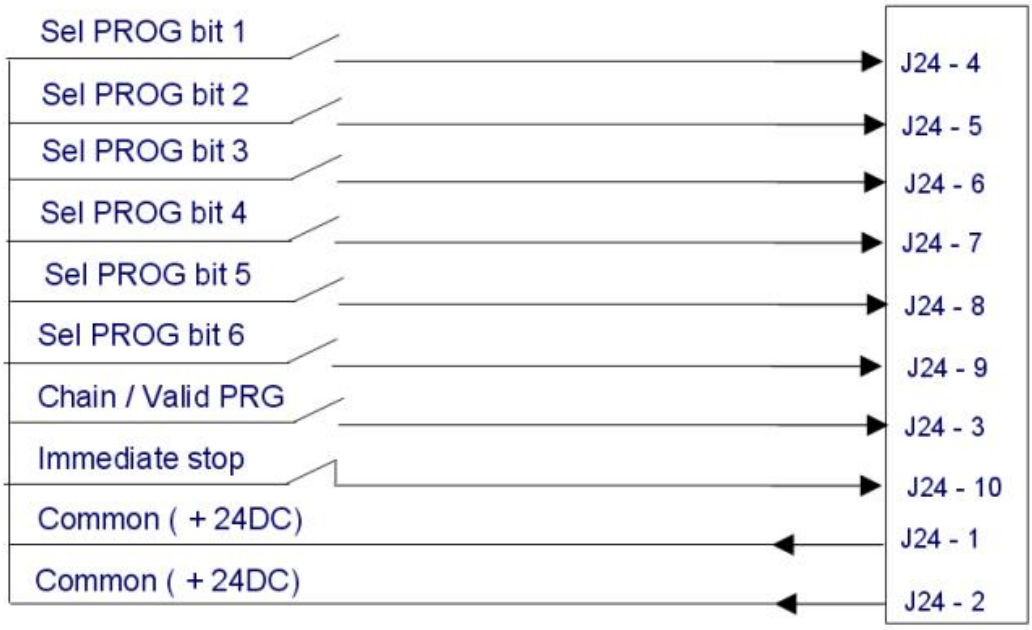
3 - START WELDING COMMANDS



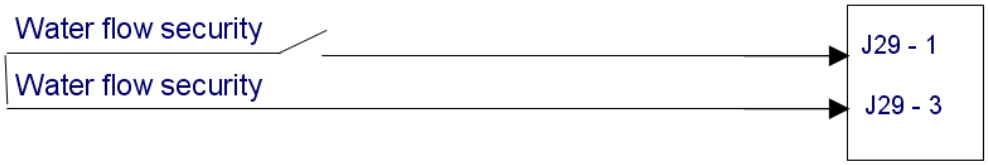
Start Welding Cycle:

TIG	Plasma	Pilot Arc ON	Start welding cycle	Result
1	0	0	1	Start of the welding
1	0	0	0	Normal stop of the welding
0	1	1	1	Start of the welding
Other cases				Not used

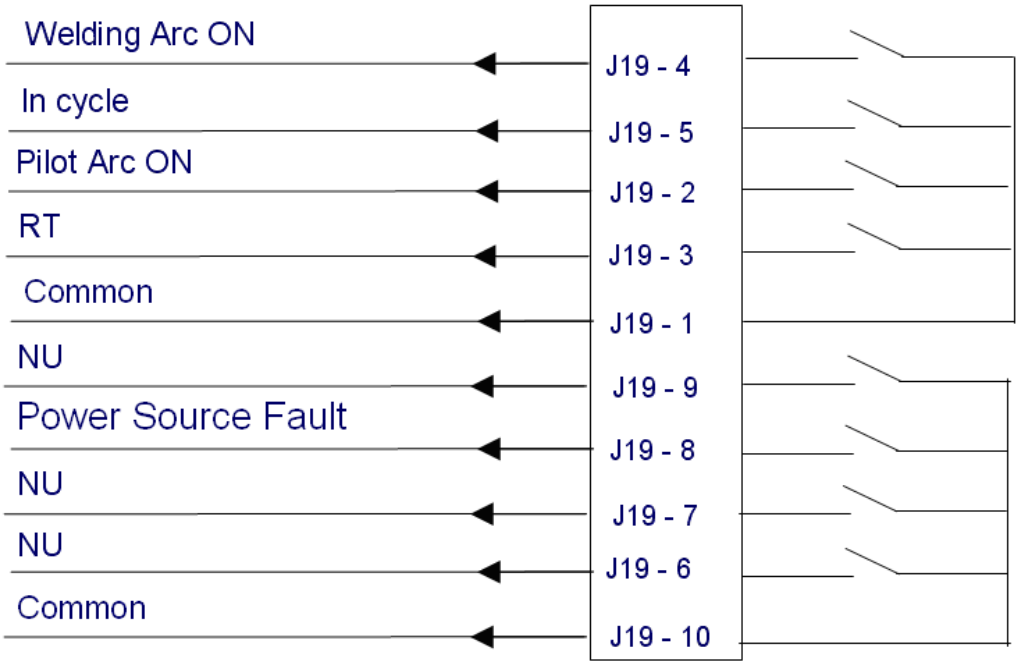
4 - OTHER COMMANDS



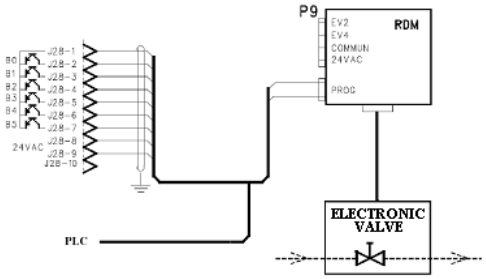
5 - SECURITY



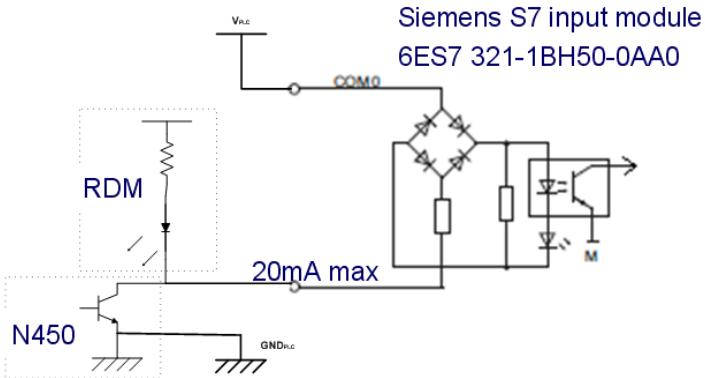
6 - SIGNALIZATION



7 - READ THE SELECTED PROGRAM

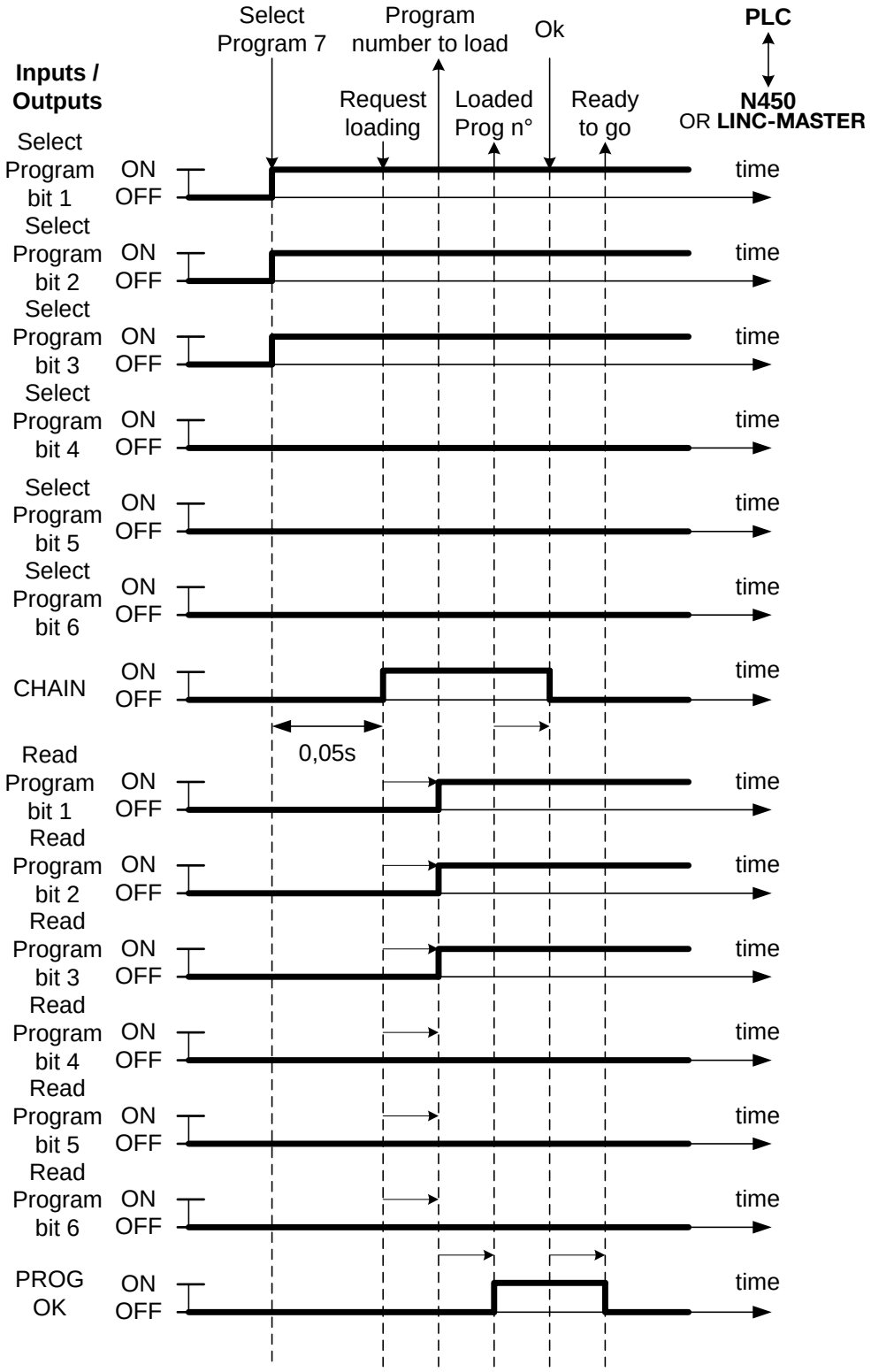


Typical connection to Siemens S7

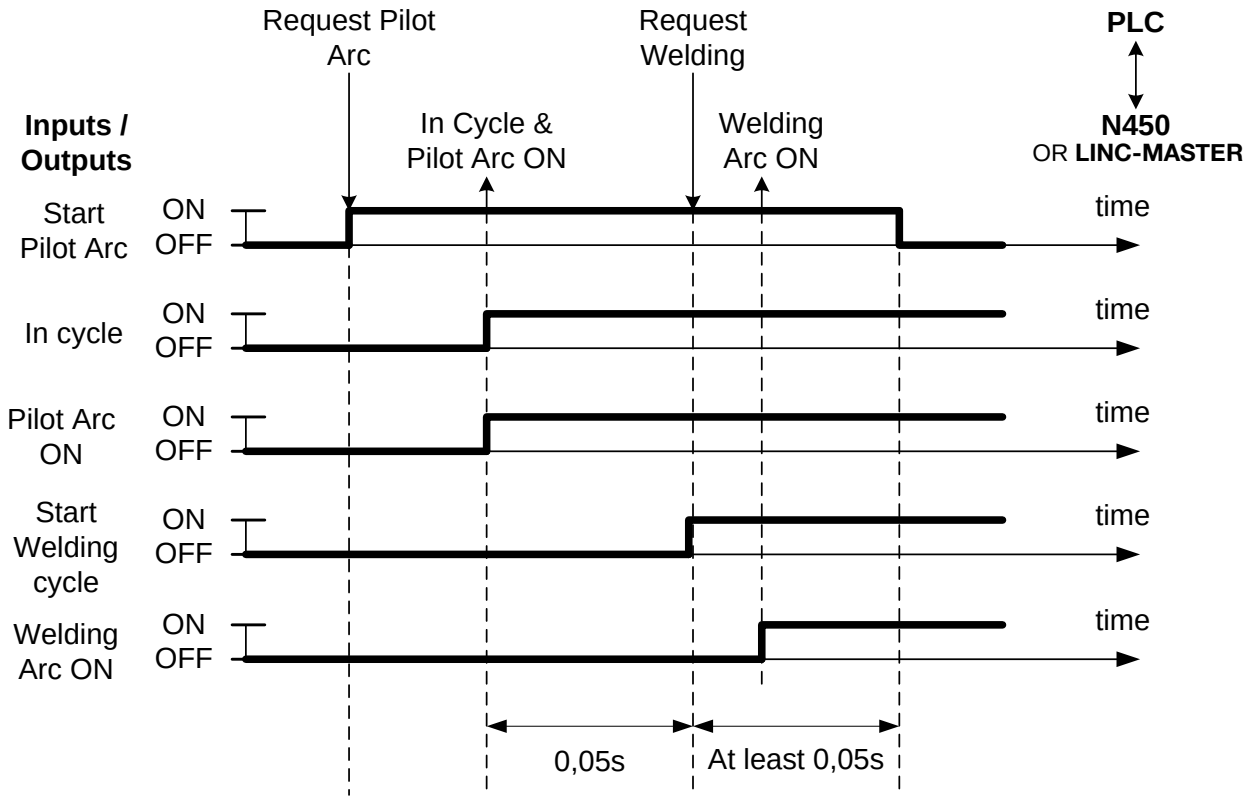


C - CYCLES

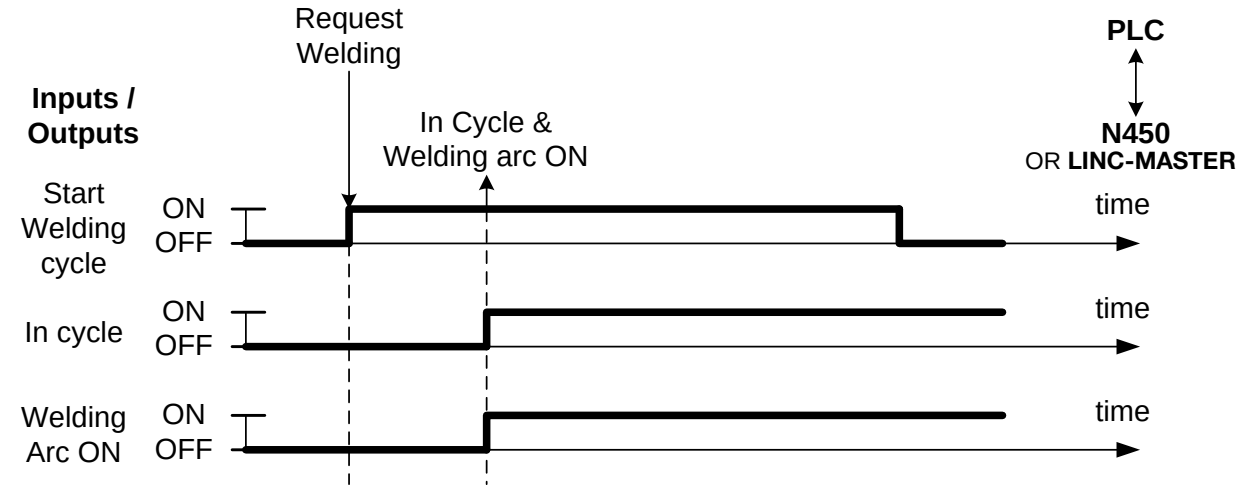
1 - PROGRAM LOADING BEFORE CYCLE START



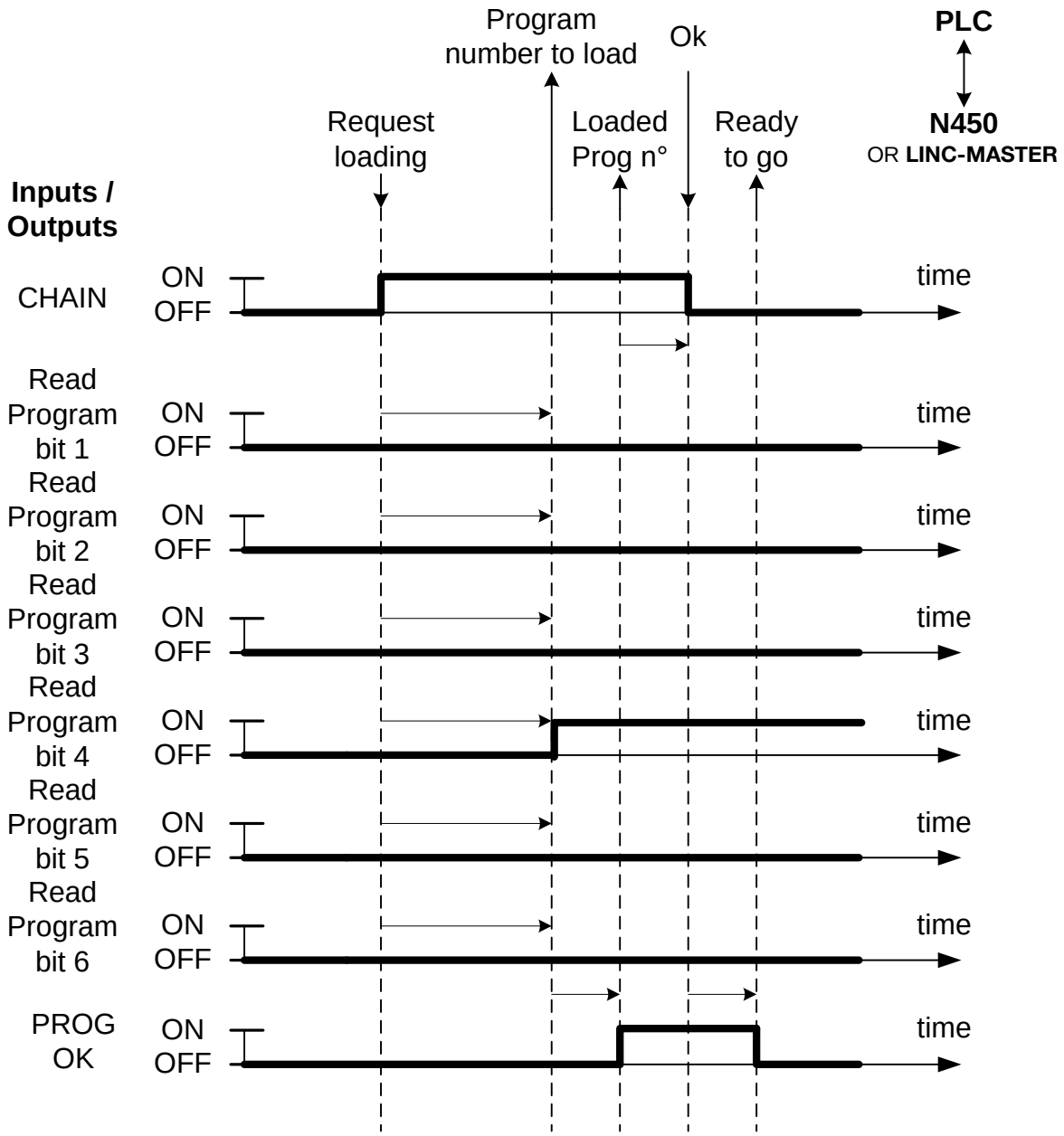
2 - STARTING PLASMA CYCLE



3 - STARTING TIG CYCLE



4 - CHANGE TO THE NEXT PROGRAM DURING WELDING

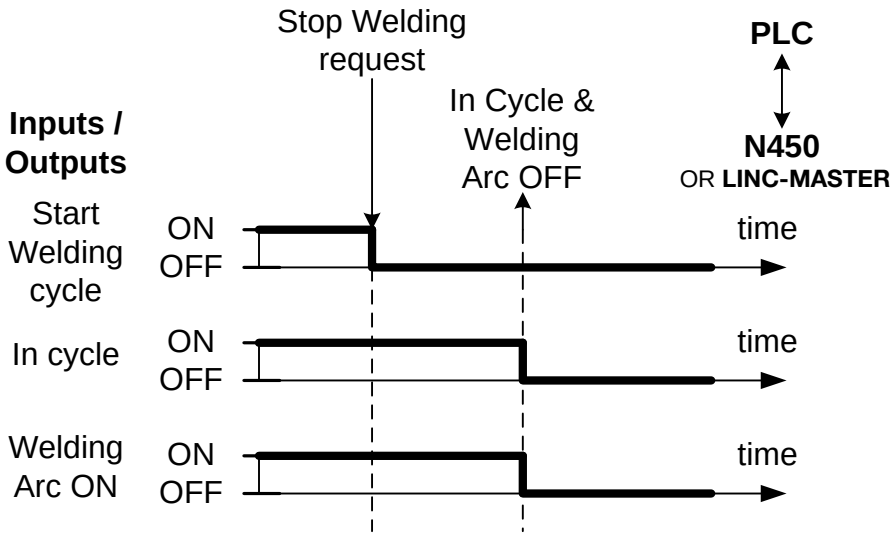


If the current program is N at the beginning, the following program will be N+1. For example :

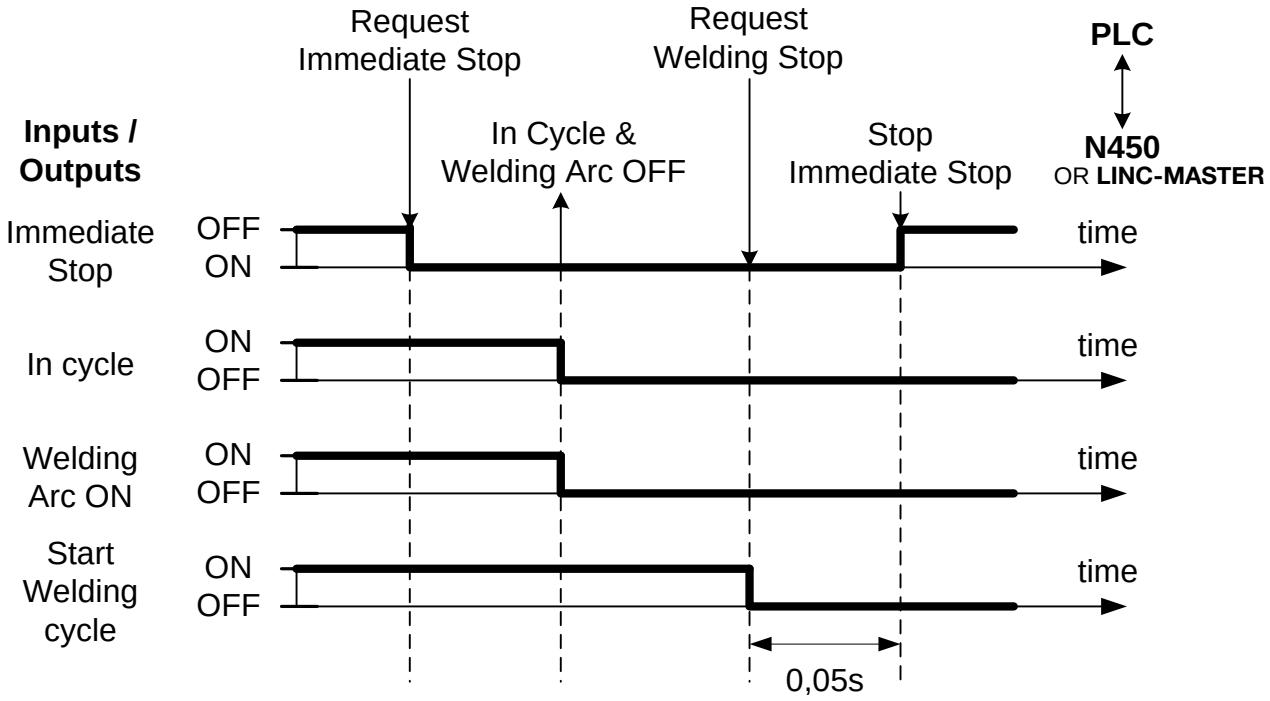
- Beginning program number = 7
- End program number = 8

NB : It's not possible to chain more than 10 programs, the first program included.
NB2: it's not possible to chain incompatible programs (TIG to Plasma or Plasma to TIG,…)

5 - NORMAL STOP OF CYCLE



6 - IMMEDIATE STOP OF CYCLE



PERSONAL NOTES

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